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ORIGINAL ARTICLES.

RAPID OPERATIVE PROCEDURE AS A MEANS OF REDUCING THE MORTALITY IN ABDOMINAL AND PELVIC SURGERY.*

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For some time I have turned my attention and devoted my time and study to intra-abdominal and pelvic surgical diseases; a sequence of this special work has been to accept the truths taught by others of experience, to follow the dictates of my own convictions and to endeavor to carry out the good, to find the flaws in the defective and avoid the same, and to improve the technique where it is possible.

The surgery of the pelvic and abdominal organs presents many features characteristic to this locality. The structures in these great cavities are peculiarly sensitive to all surgical manipulations and outside influences, and many of the organs being essential to life it behooves the surgeon to be exact in his deductions, accurate in mechanical skill, quick and decisive in its execution. The dangers here are many, and extremely rapid and fatal are their destructive processes when once initiated.

The carelessness, want of clean-cut ideas and absence of a conscientiousness of the great responsibility hovering over the surgeon doing this great work is only too often responsible for much suffering and loss of many lives, that under more favorable circumstances or even with the same surroundings, in the hands of some one who recognizes the cardinal principles underlying this work and carries them out in detail, would recover and have a long, useful and comfortable existence.

I propose in this short article to deal with the important question of the time occupied in doing this class of surgery, endeavoring to show the necessity for rapid work, how it is done and why it is so essential to success. In looking over the literature to which I have access, I have been unable to find a single article written upon this important topic; I am aware of the fact that in all text-books on surgery an occasional injunction is offered to the surgeon to do his work quickly, but the various and special reasons why the time of performing an abdominal operation should be reduced to a minimum has not been given. Before anæsthetics rapid work was advocated, but with the advent of chloroform and the acquisition of the Esmarch bandage as aids to the surgeon the important question was, in part, lost sight of and deliberate "chronic surgery" carried out. Most surgeons present, no doubt, with rare exceptions, on hearing my article up to this point will say: "I always do my work as rapidly as I can." But just wait a moment and see if you do. Examine the preparation of the patient and the surroundings, instruments, the position and allotted duty of your assistants, nurses, anæsthetizer and visitors or those

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witnessing the operation, follow your manœuvers all through the operation and see if at one or more points you cannot reduce the time of doing your work. I am sure no one will disagree with me, when I say, that an operation cannot be too quickly performed, if skillfully executed, and that an operation can be done just as well, yes better, if done quickly, than if much valuable time is needlessly squandered in dancing about aimlessly. Good surgery does not countenance reckless and undecisive haste, but good surgery does demand clean cut views in quickly recognizing unlooked for complications, rapid and good execution in dealing with the same.

The preparation of the patient for an abdominal operation is an important time-saving procedure, the details of which it will be necessary to vary to meet the indications in individual cases.

The contents of the bowels should be kept soluble for a few days preceeding the day set for the operation, and a saline cathartic administered the day before and an enema given to empty the colon of fæces and gas. This will be found to reduce the time of performing the operation; the intestines being empty will retract, if not adherent, toward the diaphragm out of your way as soon as the incision opens the peritoneum. This preliminary emptying of the intestines reduces the dangers incident to an accidental or unavoidable injury to a gut and minimizes the time in its reparation, since it is much easier and can be done better and quicker with this canal empty.

It is better to have your patient's bowels emptied before being placed on the operating table, for it takes up valuable time and prolongs the anæsthesia, to remove soiled blankets, etc., etc., make the additional or new preparations, made necessary by the large involuntary intestinal movements after your patient is anæsthetized. Have the patient empty the bladder; if it is necessary that a fluid be in this viscus, inject a mild antiseptic liquid, it will require less care and time in preventing its escape or removing this liquid should any of the liquid escape into the peritoneal cavity. The preparatory bath should not be neglected. The final washing is to be done by the second assistant after the patient is placed on the operating table, and the field of operation prepared that the surgeon may have aseptic surroundings to begin his work in; by the assistant doing this part of the work it saves the time the surgeon would occupy in "scrubbing up," should he do the final cleansing of the field of operation. Every moment saved this way reduces the time of anæsthesia sixty seconds.

Preparation of instruments is an important part, the technique of which should be scrupously carried out in its fullest detail. Have within quick and easy access all instruments necessary to performing operation within the peritoneum, to meet any complication liable to be found in this locality. Have in your trays only those you think you will need, if in doubt as to what you may need, place the "doubtful" in a separate tray. Educate yourself to the use of a few instruments and it will be a surprise to others to see with what dexterity you use them and to what a wide range you skillfully apply them. A large tray filled with a mixture of instruments foreign to the field of operation, suggests to the mind of the student of surgical simplicity, and at same time exactness, a want of discrimination and judgement on the part of the surgeon. Three pairs of scissors, three or four scalpels, etc. (in duplicate) are too many to do exact work with at same time on one patient. Have your needles threaded and placed so that they will not be tangled when you are ready to use them. I have seen much time occupied by the surgeon and assistants in threading and rethreading one or two needles while the same were being used over and over again in closing an abdominal or intestinal wound.

Have as few assistants as it is possible to get along with and place them where they can be of the most service to you and as little injury to the patient as possible. Your first assistant should be an operator of ability *and not* a first course student or even a nurse with less experience.

The steps of the operation should be thoroughly understood by the assistant that your movements may be anticipated by his endeavors to assist you. The wrapping of the patient's limbs in a flannel blanket should be done by the nurse as soon as the anæsthetic is administered or begun.

The anæsthetizer is indeed a very important personage in an abdominal operation and too much stress cannot be placed

upon the responsibility his position places upon him. He is expected to do his work quickly yet safely, taking due precaution to ward off any of the accidents that occasionally attends the use of these indispensible agents. He must keep his patient evenly under the influence of the drug, using only the necessary amount to do this. Vomiting, swallowing false teeth, cleft palate plates, gum, etc., etc., interrupt the surgeon in his work and takes time to do that which should have been avoided. The use of hypodermics of strychnia, and other restoratives must be resorted to in some instances and should be carried out by the physician giving the ether or chloroform. In patients with any pulmonary disease, we find bad subjects for anæsthetics and the time must be reduced to as short a period as possible. The time will come when the surgeon, who occupies three hours doing an operation and his patient dies, (they will often die from three hours of anæsthesia alone) that surgeon will be called upon by an officer of the law to defend himself against the charges of manslaughter. I trust this may never occur.

Any operation of long duration within the peritoneal cavity with consequent exposure and handling of the viscera is attended with a condition of profound and dangerous shock. This added to the depression of the vital functions from the anæsthetic is a danger to be avoided or reduced to the least risk by doing the work quickly.

In extra-uterine pregnancy with rupture and large intra-peritoneal hemorrhage the patient is in a condition of profound shock and acute anæmia, either of which must not be intensified by any prolonged surgical procedure, yet a resort to surgery offers in most cases the only hopes of saving the patient. As soon as the abdomen is opened and the pent up blood finds an exit, the hemorrhage at the site of rupture starts up anew with alarming rapidity. Your work here must be quick and decisive or the woman will die from a hemorrhage, probably started up afresh by your slow surgery.

Case I. *Extra-Uterine Pregnancy.* This lady eleven weeks before I saw her, had her last menstrual period. She was nauseated for a few weeks, no escape of decidual membranes (?). At the tenth week had a severe pain in right iliac region, accompanied by a "giving way feeling," with considerable weakness lasting a few hours only; no physician was called. A week later the pain in the same locality returned with increased intensity and of longer duration accompanied by alarming symptoms of profound shock and acute anæmia. A physician was quickly called who wired me to "come at once prepared to operate on a case of extra-uterine pregnancy." I saw the patient eight or ten hours after the rupture took place and the hemorrhage began. She was indeed in an alarming and dangerous condition; she had bled until her pulse was almost imperceptable and her lips were like those of an unpainted wax figure. Her whole aspect was one pointing to an early death if not quickly brought out of her precarious condition. While I was hurriedly getting my instruments in readiness, the water was being boiled and hypodermics of strychnia were given. As soon as all arrangements were perfected the ether was administered, only a small amount being necessary. The operation revealed a ruptured tubal pregnancy at about the twelfth week. Her abdomen was full of blood. The "specimen" was quickly found, a good stout ligature thrown around it and the hemorrhage immediately ceased. Hot water irrigation improved her condition, but even this was carried out quickly; much of the irrigation fluid was allowed to remain to be absorbed by the thirsty blood vessels and absorbents, the remainder to be removed through the drainage tube. Time of operation twenty-two minutes. A longer operation would have cost the patient her life.

In operating on patients whose heart and kidneys are not in a healthy condition, we have an indication for short anæsthesia.

Case II. *Double Ovariotomy; Recovery.* This lady, aged 38, has not walked a block for over a year; valvular heart lesions; pulse 120 to 130, intermittent and very weak. Took the anæsthetic very badly. Cystoma of left ovary size of goose egg, with both Fallopian tubes containing pus. *Every thing in readiness before anæsthetia was begun.* Adhesions firm on left side. Time of entire operation including tying of sutures, thirteen minutes. To have been slow in finishing this operation, with the necessary prolongation of

the anæsthetic would have been at the expense of entailing much danger to my patient's safety. The operation was performed just as well as though I had occupied a half hour longer in making my preparations after the patient was on the table, or had danced about in the pelvis aimlessly twenty or thirty minutes, or had used only one needle and stopped to rethread this one after each suture was introduced.

In patients with high temperatures where the eliminative functions of the skin and kidneys are in abeyance, any long anæsthesia and surgical operation is attended with much hazzard.

In performing a Cæsarean or Porro operation we take an additional human being into our hands, the life which our endeavors should be so directed as to save. Any illy directed or tardy manipulations here may be at the expense of both mother and child, and thereby bring approbrium to this God-sent life saving precedure. To anticipate complications and at same time expediate your work, do that part of the operation attended with little danger quickly, do not occupy twenty minutes (as I have seen) in making an abdominal incision that should be made in as many seconds. Make a small incision but not so small that you are retarded in your work by narrowness of the abdominal opening. Give yourself room.

In intestinal work the judgment of the surgeon will often be called upon to settle the question as to whether he shall do an ideal operation or content himself by a temporary procedure until his patient is in a better physical state to undergo a longer and more radical operation. The answer to the question, "Will the patient stand the longer or more radical operation?" should in the judgment of the surgeon map out his course in the case. In some forms of intestinal obstruction a resort to a quick enterotomy will be a safer step than a prolonged search for the source, and endeavor to remove the cause of the obstruction.

In appendicitis with an inflammatory diaphragm separating the abscess cavity containing the diseased appendix, in a patient suffering from pronounced systemic infection, it is better surgery to simply cut down upon the abscess quickly, let out the pus, irrigate and drain, than to delay the time of operation, prolong the anæsthesia, and subject the patient to the risk of shock, a diffused septic peritonitis and death. This is not ideal surgery but the patient will get well often with this short and quick method of treating these cases.

The close proximity of fetid pus to the peritoneum in suppurative appendicitis produces very early unusual depression.

This is noticed by the shock accompanying or following the anæsthesia and even a simple incision, here "chronic surgery" would kill the patient.

Case III. *Appendicitis, with Perforation, Abscess, Operation, Recovery.* This patient was 19 years old. Gave a history of an attack of appendicitis occurring a year ago—I saw the case in the second week of the present attack—found him in following condition: Pulse 55; temperature 96½° F.; features pinched; extremities cold, great beads of cold perspiration standing on the forehead; hiccough and vomiting; bowels constipated; a well-marked mass the size of the fist with marked tenderness existed in region of appendix. His condition in fact was of the most alarming character, the outlook for improvement by an operation was certainly most discouraging; without an operation death was sure to quickly close the scene. All preparations being in readiness the anæsthetic was administered and the operation quickly performed. The entire time of *anaesthesia* being only eighteen minutes. I cut down upon the lower border of the mass, opened it up, found a perforation of the appendix at its junction with the cæcum. The appendix was bound down by the mass of the inflammatory breastwork. The appendix was not removed. A cherry stone was found lying loose in the abscess cavity. A rubber and iodoform gauze drain were introduced and much of the wound in the parietes left open. While this was not ideal surgery, my patient recovered from the *operation* and probably the mass will be absorbed; the appendix atrophy. If this favorable termination does not take place and he is threatened with a recurrence of his trouble, he can have another operation for the removal of the appendix when his condition is such as to stand this more prolonged procedure.

There are many more important and good reasons why we should be quick in our abdominal work, but I trust I have

mentioned enough to impress anew on the minds of those present the necessity for rapid work and that this short paper may be the means of eliciting a discussion along this line, that will bring out new features, indications or reasons why the time of performing an abdominal operation should be reduced to the minimum.

CLINICAL LECTURES.

CLINICAL OBSERVATIONS IN NEW YORK.

W. H. LINK, A. M., M. D.

On Tuesday afternoon Dr. Thomas Addis Emmet operated ar the Women's Hospital. He did his perineal operation on one patient and amputated the hypertrophied and elongated cervix on another.

Both these operations were done in an ideal manner and the explanation of each step, the reason upon which it was founded and from which it was developed, were elaborated and made clear by impromptu drawings on the black-board. Dr. Emmet laid great stress on the disastrous effects of cicatrices in erectile tissue. All scar tissue he removes and mucous membrane is sewed to mucous membrane, thus restoring parts as nearly as possible to their normal condition. He believes that many women are brought up in a mad-house from the neglect of lesions that any one might readily repair who would give the principles of good plastic surgery a little attention. But now every one who graduated wanted to take out the uterus or do some other work inside the belly. The result was that such things as rectocele, or cystocele, or lacerated cervix, or complete sphincter-tears, with their attending miseries, were completely overlooked or entirely ignored. Another result of the great abdominal craze was, that plastic work was so absolutely pushed aside that good plastic surgeons were becoming scarce. The doctrines that he has been setting forth for thirty years, the operations that he has been perfecting during the same time were replaced by everybody's modification, while men were daily found claiming to do a *modified* Emmet's operation who did not even *understand* the real operation when they saw it done by its author himself. He claims that there are very few men in New York that either understand or do his operation for restoration of the pelvic floor. From some attempts we saw made to do a "*modified*" Emmet we are satisfied that the old man is correct. He claimed that, of men outside of New York who were exemplifying his works and its underlying principles, Dr. Joseph Price, of Philadelphia, and Dr. Howard A. Kelley, of Baltimore, did it the best.

One feels, while listening to Emmet talk, that he is in the presence of a medical and surgical sage. In his case speech is golden and the words and precepts that have grown out of almost a third of a century of toil and devotion to his chosen specialty, fall from his lips in an endless stream. He is as fresh in thought, as rich in language and as fertile in illustration as though in the prime of life; his physical vigor is surprising to those who have known of him so long, while his heart is as young and his courtesy as chivalaric as in days long ago in old Virginia. He is a grand old man and it will be an admitted fact some day that Emmet, Sims and McDowel are America's three great masters to whom the medical world can point with a just pride long after most others are forgotten.

Another of New York's brilliant and able men is Dr. Wm. M. Polk. The two things that just now attract the attention of the vistor to him are his conservative work on the ovaries and his treatment of endometritis and some forms of tubal disease by curettement, irrigation and iodoform gauze-packing of the uterus.

He does not believe in removing an ovary unless it is so hopelessly diseased that none of it can be left with safety. We saw him remove a dermoid ovary from the left side of a patient while on the other side he split the remaining ovary al-

most to its base, punctured and emptied several collections of fluid both from the internal and external surface, then sewed up the incision in the body of the ovary with a continuous Lambert suture of catgut and dropped it back into the pelvis. He did this for two reasons, he said: the woman desired to become a mother; and the ovary predominated the individual and is as essential to the preservation of those finer and more delicate shades of character which serve to differentiate woman from the opposite sex, as the testicles are to preserve the masculine character of the man. He claims that most disease of the appendages has its origin in an endometritis. That the endometritis often exists with healthy tubes and ovaries above. That a careful curettage and gauze pack promptly cures the endometritis. That when the disease of the tubes is comparatively recent and the tubal opening at the uterine end is patulous, a curettage of the uterine canal with gauze packing drains the tube and shutting of the original nidus and origin of the disease, most frequently cures the pyosalpinx. That, if it fails to cure, the endometritis is cured and abdominal section may be still resorted to for the cure of the pelvic trouble. But in old cases of suppurative pelvic disease he does not recommend the gauze packing unless preceded by a section and it is then done only for the cure of the uterine disease and to hasten the convalescence. He drains some pus cases through the vagina by incising the vaginal vault, but this he recommends only as a temporizing measure in those cases of long standing so reduced by sepsis that a section would prove fatal. After draining through the vagina and giving such relief that their strength is partially restored and their condition improved, he makes a section and removes the diseased structures. He is a very cool, deliberate and graceful operator. His technique is perfect, his work thorough and radical except where modified by his theories.

He is the soul of courtesy, and he impresses one as a masterful man, who does not have to cross the ocean to have any questions settled for him. He talks, looks, acts and works like an investigator. He does not appear as if he feared to assume responsibility, or to settle a question for himself by the light of his own experience. He is the son of Bishop and General Leonidas Polk, and he undoubtedly has inherited more of the general than the bishop in his father's character; for he has the quick decisiveness of the military man, and his personal bearing and precision of movement all betray the military element, which is his both by inheritance and early training.

No one looking for good abdominal surgery ought to leave New York without seeing Polk.

Quinine Pill-Mass—A Catch Prescription.

APOTHEKER, St. Louis.—Here is a prescription handed me to be filled, by a young M. D. just back from a few months' stay in the old country. How would you fill it?

℞ Quinine sulphatis.....grs. xv.
Acidi sulphur. dil.....q. s.
Mix and divide into six pills.

Don't you think the young doctor had better go back to Germany again for another semester or two?

The prescription is all right, as you will find if you mix the ingredients in a hot porcelain capsule. Add about five minims of the acid, and in a short time you will have a beautiful mass. This very question was some years ago the occasion of the appointment of a pharmaceutical commission in either Austria or Germany, we forget which. A certain apothecary who had accidentally discovered the reaction, had a physician friend to write the prescription and send it to his rivals around town, all of whom declared that the pills could not be put up without the use of other ingredients. Apothecary No. 1 thereupon put up the prescription, and was roundly denounced by the other apothecaries as a fraud. The matter got into the local journals and came to the attention of the authorities, who thereupon appointed a commission of three experts to investigate. The commission differed; one of these declared it was impossible to make the pills without the addition of other ingredients. Another thought it possible, but very difficult, while the third experimented a little and solved the matter. It is highly probable that your young doctor had read of the matter (as considerable litigation grew out of it) and gave you the prescription as a puzzle.—*Nat. Drug.*

COMMUNICATIONS.

SOME OBSERVATIONS ON THE THERAPEUTIC TREATMENT OF UTERINE FIBROIDS WITH REPORT OF CASES.*

CHAS. W. ADAMS, A. M., M. D.†

In presenting my subject: "Some observations on the Therapeutic Treatment of Uterine Fibroids with a report of Cases," I shall beg your indulgence and assume on your part a knowledge of many facts, which I have not the time nor opporturnity even to touch upon. The subject is so broad, that it would be useless to take it up in its entirety, within the limits of a single article, and hence I may say that my paper is simply the record of an experiment carried out in a certain direction, and as such I give you the results of my experience.

The cases which I have observed are essentially clinical in their nature, taken from my Women's Clinic during the past two years. From the entire number seen, I shall select for report only those, which, from the length of time they were under observation, can give some positive data, by means of which we may come to a definite conclusion.

Before entering upon their consideration it may be well to make a few preliminary observations, in order that there may be a proper understanding of the cases to be reported.

I will start with this as an axiom, that so long as fibroid tumors of the uterus exist, women should be given the benefit of every method of treatment and operation combined with judicious selection. If this be admitted, it follows that true conservatism demands that every method of cure or treatment must be recognized and understood and no one method used or depended on to the exclusion of every other. I may be pardoned in making this statement, since you as well as I know that it is the tendency for the physician to select one method, and decry the value or benefit of every other, save that which he may follow.

While therefore in my paper I shall report the benefits of but one method of treatment, I do not wish to be understood as using that alone. In fact, according to indications, I should use any one of all methods which the experience of the profession has shown to be of use in the treatment of uterine fibroids.

I have purposely confined my observation to my public clinic, because the cases are matters of record, of access to every one and have been under the eye of not only myself but that of other observers. Many of the cases were under the observations of Physicians during the "Practitioners Course" last spring and were weekly seen and examined, and the effect and course of treatment observed and studied.

Briefly then, I am speaking of fibrous tumors of the uterus or more correctly myo-fibromata—pathological growths—composed of connective and muscular tissue, the one or the other tissue predominating in different tumors. The prominent symptoms for which the patient may present herself for treatment and for which relief is sought by medicine or operation, are menorrhagia, metrorrhagia, pain through the pelvis, profuse leucorrhœa, watery discharge, pressure symptoms, etc. In considering therefore the means of relief or cure of any given case of myo-fibroma which may come under observation, we should bear in mind not only the conditions present, the symptoms for which relief is sought, but the prognosis, course, duration and termination as well. If the case were one of ovarian tumor, which would sooner or later endanger the life of the patient, no one would deny that the end sought should be operation and removal of the growth as soon as it was recognized. But in the case of a myo-fibroma, I think there is every reason to act with more caution. As long as there are no urgent symptoms or the tumor did not interfere with the vital condition or nutrition of the patient, there would be every reason to act with

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the utmost conservatism. This seems to be the consensus of opinion of the majority of thinkers and workers in our field, and whatever may be the opinion of individuals, it should be entitled to consideration.

I here call your attention to these facts also, which I have taken into consideration in making these statements. I mean the disputed points of benign growths taking on malignancy, also the tendency to cessation of growth after the menopause has occurred as well as other reasons which might argue for the operation of removal of such growths in every case. The advocates of the different methods of the management of a myo-fibroma, have so thoroughly laid their methods and results before the profession that I need not mention them. At present those who favor operation are the most aggressive and seem to have the ear of the profession. Yet while the results of operation have been so safe and sure in the hands of a few, I cannot bring myself to believe that it is the only and final resort. I cannot but believe that there will and must always be a necessity for a proper and judicious selection of some one of all methods used, governed always by the indications of a given case.

It was with these views in mind, that I have carried out a series of therapeutic experiments on cases of myo-fibromata during the past two years, the result of which I shall give in the following reports. I regret only that they do not embrace a larger number and extend over a wider range of cases.

The number of patients seen was sixteen—fifteen colored and one white. The oldest was aged 45—the youngest 29—the average was 37 years. In the sixteen seen, three had no children but had had from one to three miscarriages. Two had children but no miscarriages. Nine had neither children nor miscarriages. In arriving at a conclusion as to the cause of uterine fibroids in my cases, I would say that race, age and nuliparity play a large part in their production. I may also state in this connection that only one of the sixteen was of the class of myo-fibiocystic tumors.

The treatment carried out in every case was the same, viz.:

℞ Fl. Ext. Ergotæ
Fl. Ext. Salix Nig. ..... aa ℥ss.
M
Sig. To be taken three times daily.

The reason for the selection of this combination of drugs was mainly theoretical, but practical experience has certainly demonstrated its usefulness in certain cases as a scrutiny of the cases to be reported will show. The ergot is useful from its contractile effect upon the muscular tissue of the uterus as well as on the myo-fibroma within it or connected therewith. The action of this drug in this connection needs no further mention. The salix niger as a sexual sedative, a repressor of passive hemorrhage and chronic mucous discharges, a diuretic as well as a mild tonic has acted well in every case in which it was indicated. In its combination with the ergot the mixture has been borne for months continuously in every case without any unpleasant effects.

With these explanatory remarks, I may now report the cases which came under observation and which were treated according to the above formula. I have selected only those who, from the length of time they were under observation and on the same treatment, will furnish undoubted data from which to come to a conclusion. I regret that my cases are not more complete as regards history and course. You will however bear in mind that I was dealing with an ignorant class in many of whom it was difficult to ascertain even their correct age. I did the best possible under the circumstances.

Case I. Mrs. C——, colored; married; age 43; never pregnant; came under observation January 12, 1891. Nothing irregular with menstruation; no discharge from the vagina.

Symptoms complained of were initability of the bladder and rectum, pain and dragging sensation in the abdomen and pelvis, uterine tenesmus. General health fairly good. Examination shows large, smooth, round and solid growth in abdominal cavity reaching above the umbilicus, but little movable, due perhaps, to its size. The tumor was made out as springing from the posterior side of the fundus of the uterus, which was crowded down under and against the arch of the pubis. Its size and depth could not be well made out.

Diagnosis—Myo-fibroma.—Patient was placed on:

℞ Fl. ext. Ergotae } .....aa℥ss.
Fl. ext. Salix Nig. }

to be taken three times daily. Ordered

to report for observation once a week. The patient was kept on this treatment steadily up to Dec. 3, 1891. During this course of treatment I find at periods of three and four weeks interval the following notes in my clinical record book: Tumor smaller and freely movable. Tumor still smaller; freely movable and all signs of pressure and pain in abdomen gone.

On Dec. 3, 1891, when the laparotomy was performed for its removal, the growth was about the size of a large orange, freely movable without adhesions, and could clearly be made as springing by a thick, fleshy pedicle from fundus of uterus.

CASE II. Mrs. K——, colored; married; age 35; no children; came under observation June 26, 1891.

Symptoms.—Menstruation regular but painful; excessive flow until three months ago; complains of lancinating pains in abdomen and pelvis. Vesical and rectal irritation. Is almost bedridden, being brought to clinic in a hack.

Examination.—The growths, which were noticed some years ago, are now nodular and multiple, completely fill the abdomen extending up to ensiform cartilage.

No clear diagnosis could be made out on account of the size of the tumor. The only fact which seemed certain was that we had to deal with an enormous myo-fibroma of the uterus.

The patient was put on same prescription as case first and ordered to report in one week. Treatment was carried out as directed, and on July 20, she was able to come to clinic on cable car and reported that she was out of bed and the previous day had done a day's washing. The patient kept on the same treatment, improving in general health with a steady and continuous discrease in the size of the tumors, until October 8th, when she ceased to return to report, no doubt on account of her belief of the uselessness of further treatment, deeming herself well.

At present patient is in bed and, as report says, unable to leave it on account of a stroke of paralysis which occurred in March of present year, 1892. I have no doubt that the present condition of the patient is due to her ceasing to continue the treatment and the consequent growth of the myo-fibroma.

CASE III. Mrs. Mary F——, colored; married; no children; came under observation July 13, 1891. Two miscarriages at third month. Menses regular but painful; at times being so severe as to confine the patient to her bed. General health poor. Patient's occupation has been that of a barber for the past thirteen years. First noticed a swelling in the abdomen six years ago. At this time pains were griping in character, coming on daily about 3 o'clock; this condition lasting two months at a time. During this time menstruation was very profuse, of six or seven days duration. Had leucorrhœa and a profuse discharge, watery in character.

Examination.—Uterus pushed forward to pubis; hard tumor irregular in outline lying behind and to right; dense and firm to the feel, freely movable with uterus, springing apparently from the posterior wall of the fundus and extending to the umbilicus.

Diagnosis—Myo-fibroma. Treatment same as first case. The treatment has been continued to Dec. 19, 1892, when the patient was examined and found to have a tumor in the abdomen about the size of the closed fist springing from the posterior wall of the uterus; movable, giving no pain or causing any disturbance by its presence. She is still on the same treatment and able to perform her daily duty at the barber's chair without any pain or inconvenience.

CASE IV. Mrs. Tenny M——, colored; age 44; married; has had three children, but no miscarriages; came under observation November 16, 1891. General health good, has been doing washing and ironing for the past eight years. Four years ago, while hanging paper in a room, she experienced a strange feeling accompanied with pain in the right side. This has continued at irregular periods up to time seen. Since this occurred menses have become painful and profuse. Leucorrhœa and profuse watery discharge.

Diagnosis—Myo-fibroma.—Examination showed the uterus retroflexed with a fibroid on right side, twisting and distorting the uterus on its axis. Treatment same as first.

Result: While in this case there has not been a marked diminution in the size of the growth, yet there has been no increase, and the patient has been able to

attend to the duties of life without discomfort. She is at present still on the same treatment and under weekly observations and examination. Menstruation regular, lasting four and five days. Since coming under treatment she has periods of despondency, a fact which was noticed in several others of the cases under observation. Dr. D. W. Prentiss, of Washington, first called attention to this peculiar effect of ergot on certain cases in an article written for the *Amer. Journal of Obstetrics*, December, 1889.

Case V. Mrs. Johanna C——, colored; age 38; married; never pregnant; first seen February 1, 1892. Menses regular, scanty; little pain. General health good up to a year ago. Has done washing for the past thirteen years. About two years ago abdomen began to swell and the urine was retained, making the use of the catheter necessary. Pain has been present from the beginning of the trouble; no leucorrhœa.

Examination shows a hard, round, smooth, dense and firm body occupying posterior cul-de-sac. Cervix pushed high up under pubis with uterus anterior.

Diagnosis— Myo-fibroma.— Treatment same as first. Since treatment menses have been regular, lasting three to four days. Says she does not suffer as much pain as before; no trouble with the urine. The growth has diminished sensibly and the general and local conditions of the patient are such as to warrant a continuance of the treatment.

Case VI. Mrs. Mary A. J——, colored; age 39; married; never pregnant, came under observation June 27, 1892. Menses regular with some pain, profuse and last eight to twelve days. General health fairly good. For the past nine years has kept a store which required her to be on her feet a great deal of the time. About three years ago sold her store on account of ill health, since which time she has been doing her own housework alone. About six years ago excessive menstrual flow began, but patient did not know the nature of her trouble until examined at the clinic.

Has had leucorrhœa and profuse watery discharges; complains of pain and dragging sensation in abdomen, also frequent and painful micturition.

Examination.—The tumor was found to spring from right side of fundus of the uterus extending as high as umbilicus.

Diagnosis — Myo-fibroma.— Treatment same.

Since treatment there was a marked decrease in size of tumor until it was one-half the original size, since which there has been no change. Menses regular, not great in quantity. Patient, on December 19, expresses herself as feeling as well as she has ever been in the past. Complains of periods of despondency.

I will here quote from a letter written to me by my friend, Dr. M. Coryell, of Fort Scott, Kansas. The report will speak for itself:

"On June 5th, 1892, was called to see Miss Z. C——, whom I found suffering from a uterine fibroid. Thinking this to be a good case to try your treatment of salix niger and ergot, I immediately put her on half drachm doses of each to be taken three times daily. This treatment was kept up until the fifteenth day of November when I found her so much better that I stopped their use for a time. She measured around the abdomen, on level of umbilicus, 56 inches; when treatment was begun on June 5th, also the depth of the uterus as measured with the sound was 6¾ inches.

When seen and examined on November 15th, she measured around the abdomen, at the level of the umbilicus, 42½ inches, while the depth of the uterine canal had decreased to three inches. She has not had one period of flooding since she began the treatment; while, according to her previous history, she has had from two to three periods of flooding per month for five or six months previous to being put on the ergot and salix niger. I may say, from observation of this case, that the combination of drugs, as recommended by you, will do all that is claimed for them in certain cases."

These cases as reported are the histories of patients with their treatment upon which I have based my observations of the therapeutic treatment of uterine fibroids. They are not manufactured or colored to suit a belief or a theory. They are real, taken from a tri-weekly clinical record and founded upon observation (and I may say an almost daily observation) extending through a period of many months. The only error may lie in the fact that they do not cover a sufficient number of cases and do not extend over a

long enough period of time. However this may be I am of this opinion and shall endeavor to present it to you in the following propositions, which you may take as the result of my observations:

1. That whenever a woman has a myo-fibroma of the uterus she can be benefited either by operation or treatment.

2. That whenever a woman has a myo-fibro-cystic tumor of the uterus there is only one method of cure and that must be operative.

3. That the elective method of palliation or cure in any given case of myo-fibroma must be governed by the condition of the patient and the condition and relations of the tumor present.

4. That the elective methods of treatment of myo-fibromata are palliative, medicinally curative, electricity, operative.

5. That certain cases of myo-fibromata can be and are benefited and rendered entirely inert by the use of properly selected therapeutic agents.

6. That the class of myo-fibromata which are benefited by the use of therapeutic agents are those in which the muscular tissue largely predominate.

7. That the class of myo-fibromata, in which the muscular tissue largely predominates, are reduced in size and rendered harmless by the use of salix niger and ergot. That this does not, however, cover every tumor of this class.

8. Finally, in certain cases, the use of therapeutic agents, if not curative, makes an operative interference safe and of more easy performance; locally by lessening engorgements and loosening adhesions by its contractile effects, and constitutionally by relieving symptoms and thus allowing the attainment of a better general condition.

THE USE AND ABUSE OF TRUSSES.*

AP MORGAN VANCE, M. D.

As far back as history takes us the treatment of rupture has been a problem with which the surgical mind has wrestled; and even up to the present day, the treatment of this ailment, from which such a large proportion of the human family suffer, one person in every eight being the subject of one or the other varieties of hernia, it neither respecting age, sex, nor condition; has any definite procedure been devised which can be relied upon for relief?

Through all ages have all operations and appliances been practiced and used, the number being limitless, yet it is left for some future surgeon, as stated above, to immortalize himself by originating some treatment, yet unknown, before we can claim to cure this trouble.

In the experience of the writer the most perfect results have been brought about by the use of the truss. It is an unfortunate fact, probably due to the meagre results obtained, that the treatment of the hernia by the truss has so largely been relegated to charlatans and unscientific men. This is undoubtedly the fault of the regular profession, few of whom have studied this branch of mechanical surgery, and the common way of disposing of this class of cases by the general practitioner is to refer them to some druggist friend, or, if possible, to some instrument-maker, to have the instrument applied, who, as a rule, exposes his stock of trusses and allows the patient to choose for himself, just as if he was selling a pair of shoes or other article of wearing apparel; the result, of course, being a mere lottery, as it is no uncommon thing to find patients thus treated wearing right trusses on left hernias, or vice versa, or wearing them upside down or otherwise improperly. It is also a daily observation to surgeons who see a number of these cases to find trusses applied, often by the advice of a physician, upon cases of retained testicle, variocele, hydrocele, buboes, orchitis, dropsy of the scrotum, psoas abscesses and what not? This is due of course to the almost universal lack of knowledge, and therefore of interest, in this class of troubles.

The result of this mal-treatment is untold suffering and oft-times death, the vast

*Read before Jefferson County (Ky.) Medical Society.

majority of strangulated hernias being due to the mal-application of a truss.

Of the thousands of trusses of different varieties which are sold there are only one or two which are made upon scientific principles.

Any truss which gains its retentive power by constriction of the body, more particularly all forms of elastic truss, are made improperly, as every movement influences the relationship of the body and pad. Nearly all of the older patterns are made with the idea of producing irritation with the hope that the hernial opening may be closed by plastic deposit; of course, the opposite result is inevitable, as atrophic changes are sure to follow this severe pressure.

The true idea should be to simply prevent the entrance of protrusion into the canal, trusting to the natural tendency towards closure which takes place after the descent of the testicle. Th is tendency is in exact proportion to the youth of the patient, and the length of time the hernia has existed.

Therefore, the truss pad should be more or less flat, and its relationship to the part constant and undisturbed by any movement of the body.

Therefore, those trusses which acquire their force by antero-posterior pressure from sacrum to abdominal ring, without constricting the body, are best. This pattern is known as Hood's Truss. There is no need of any spring pressure, as with this arrangement of the encircling band the pressure can be graduated exactly.

After the proper truss is applied the patient should be carefully instructed how to use it and what is to be expected of his truss. The benefit to be derived, of course, being just in proportion to the intelligence with which it is used. This is oft times very difficult as nearly all patients, before they get advice from a scientific source, have been wearing trusses of various styles and patterns, and invariably think they know more about it than any one else; and almost universally insist upon applying the truss pad over the pubic bone instead of supporting the canal above.

What is known as the French and German trusses are constructed with this end in view and can be applied in no other way.

In the treatment of infantile hernia the problem is much easier, and except in very young subjects the same form truss as described above should be used. In younger children, say up to two years of age, where constant soiling prevents the use of the regular form of truss, the ordinary "T" bandage applied over a pad made of adhesive plaster, is the best form of support. Here the constriction of the body to obtain the requisite pressure is not harmful, as the muscular system is undeveloped, and the soft medium of infantile fat prevents a movement of the pad objected to above. These bandages can be made best of canton flannel and in sufficient numbers that a fresh one can be applied as often as constant soiling requires.

In those young cases where the condition is aggravated the Heatonian operation is very beneficial, simply as an aid to the truss, the temporary deposit of lymph preventing the easy descent of the hernia, and making the constant retention much less difficult.

There is no question but that a certain percentage of radical cures occur after any of the recognized operations, yet no man can conscientiously declare that a cure will result in any case; therefore, should we not apply a light support as a routine practice, or have we the right for the sake of ascertaining the value of one or the other procedures, to allow these cases to go without a support?

Even if an operation should be devised which would positively bring about a radical cure in this condition the abhorence of the knife on the part of the people will prevent the vast majority from taking advantage of it.

Therefore the truss will continue for all time, and it behooves us to educate ourselves in its application and a better understanding of its use, that these sufferers may be more scientifically treated.

Dr. J. B. James (*British Medical Journal*) states that he has been treating hæmorrhoids for years by simply applying calomel locally, and without exception his treatment has been successful, especially when inflammation was obvious in the hæmorrhoidal mass, characterized by mucous discharge and hemorrhage. Under this simple treatment the symptoms are speedily relieved, with the still more important subsequent advantage of the patient's restoration to health.

SOCIETY REPORTS.

JEFFERSON COUNTY, (KY.,) MEDICAL SOCIETY.

Meeting of March 15th, 1893.

"The Use and Abuse of Trusses," by Ap. Morgan Vance, M. D. (See page 687).

DISCUSSION.

DR. W. L. RODMAN: I think Dr. Vance has called attention to a very important subject; he could scarcely have selected one of greater importance than the use and abuse of trusses. It certainly is a subject that every practitioner in medicine and surgery should take a great deal of interest in, on account of the frequency that these cases are met with in practice. I have sometimes thought, however, that herniæ are not as common as the text-books tell us—some say one person in every thirteen, others one in every ten; Dr. Vance states, I believe, one in every eight. Certain it is that these conditions are very common, but it leads me to say that my own individual experience has not furnished the great number of herniæ one would expect from reading books. I examine on an average from 200 to 300 men for life insurance each year, and I am quite sure that in those subjects I examine I do not strike more than one case in twenty-five or thirty who has a hernia. I do not examine, however, many laboring men, and this may explain the small number of herniæ I meet with in life insurance risks. One man's experience is entirely to small to base statistics upon, or to form an opinion from. Certainly, from my experience, I cannot think that herniæ are as common as we are led to believe.

I fully agree with everything Dr. Vance has said on this subject; he is certainly correct in urging that every man who treats hernia should be very careful to write a note sending the cases to an instrument-maker rather than to refer them to a drug store; this is something that I never did in my life and never shall do. I see that the measurements are correctly taken and instruct every case of rupture to go to an instrument-maker and have a suitable truss adjusted and then report to me again. If the instrument-maker knows this is to be done he will be more careful in adjusting the truss, than he otherwise would. I think, as Dr. Vance has said, there is so much uncertainty (and some little danger) attending the operations for radical cure of hernia that probably the best thing to do is to follow the old practice of fitting each case with a truss and asking him to wear it the rest of his life, or so long as it retains his hernia and does so comfortably. I have rather undergone a change of heart in regard to the radical cure operations in the last year or two. I have done the operation a few times and have been successful in every instance. I have insisted upon the patients wearing a spica bandage, or some kind of light truss, for several months after the operation. I have changed more from what I have read than what I have done, because my cases have been so few as to hardly warrant me in making the change. When one reads of the number of operations done by MaCewan, Kocher, Bassini, besides Bull, McBurney, Marcy, and other men in this country, we are struck with the fact that they do cure a great many cases; in fact, the vast majority have gotten well after radical operation. I do not consider that any operation is a *radical cure* where you must supplement it by the continued use of a truss. The dangers of the operation in experienced hands are not great, still there is some danger in it. I do not believe a man will meet with more than two or three deaths in 100, possibly statistics do not indicate as large a death rate as that. W. T. Bull, of New York, has probably done more operations for the radical cure of hernia than any one else in this country. I remember he read a paper before the American Surgical Association three years ago. He reported 134 cases that he had operated upon, losing but two cases, I think. He operated upon very young children and very old men and women—some over eighty—taking the cases just as they came, in his operations at the Hospital for the Ruptured and Crippled, as well as other hospitals in

New York. Bassini, Kocher and MaCewan claim even better results than this. Bull is not very enthusiastic over the operation. He thinks that in a majority of cases the hernia recurs. He remarked to me the last time I saw him in New York, that "it was a nut for somebody else to crack; that no one had ever proposed a certain operation for the cure of hernia." I believe, however, that we strike cases very often where we are perfectly justified in advising the patient to have a radical cure performed. I think I have such a case now, a young man, twenty-four or twenty-five years of age, who has had inguinal hernia for a number of years, and has been three times to see me, urging the propriety of operation for radical cure.

The reason he has been talking about radical cure, is, I find, that he is very intimate with a medical student, rather a recent graduate, who has spoken about the propriety of having his hernia operated upon. I have declined each time and told him that as long as the hernia could be held up comfortably and safely I thought he should persist in the use of the truss, that while it would not cure him—because he had already worn it for seven years—still I thought it was better to wear it the rest of his life than to submit to an operation. He has rather "kicked over the traces," lately, and it was due to the fact that he was out taking violent exercise two or three weeks ago and the hernia came down, the truss probably getting out of fix some way, and he was laid up for a few days. He now says he is not going to wear a truss any more. In a case of this kind I think it is our duty to operate. I think he will be altogether in a safer condition by having a radical cure performed, rather than go without a truss, as he now does—he positively refuses to wear one any longer. I do not consider that the danger is very great; however, if I should operate upon him I should insist upon his wearing a light form of truss for three or four months afterward. I have seen some excellent results from radical cure operations for herniæ. I have spoken differently in societies before this, but I have watched cases in the practice of other surgeons, have also had a few myself, and have been reading a great deal upon this subject in the last year, and am fully persuaded now that a great many of these cases should be operated upon. In people who absolutely refuse to wear a truss, and who cannot be made to appreciate the fact that they take their lives in their hands every time they go out for a walk without one, an operation should be advised.

Dr. J. M. Krim: What would you consider as the greatest age at which a truss may be applied with the prospect of a permanent cure?

Dr. A. M. Vance: I have seen several cases in men over thirty that were cured by the truss. I think it depends entirely upon the intelligence of the patient and what is to be expected of him. He should never rise without the truss on, and there are a great many little things that should be taught a patient who is to wear a truss—no truss will sustain a sneeze, and every man who wears one should put his hand in his pocket and support the truss while sneezing. If a truss is applied early, we are apt to get a rapid result. I think perhaps the cure of herniæ in early life is simply the tendency that these parts have to contract, like the contraction after the descent of the testicle.

Dr. Trunnell: What is your experience with peritonitis following a ventral hernia, for instance, caused by violence? In the case I refer to there was marked strangulation, and after reduction there were distinct evidences of peritonitis for some time. There was complete cure of the hernia, and I believe the peritonitis following reduction had something to do with preventing return of the trouble.

Dr. A. M. Vance: I have never seen any marked peritonitis in cases of hernia. I remember seeing one case of incarcerated hernia in a woman; upon reduction she had a great deal of pain and some fever, which however passed off after giving salts. Possibly peritonitis assisted cure in the case referred to by Dr. Trunnell by thickening the peritoneum.

I agree with Dr. Rodman in what he says concerning the radical operation for cure of hernia, except that I think it is a misnomer until we can get something absolutely sure. I operate, of course, upon cases where I cannot do good work with the truss. I would not hesitate for a moment to operate upon the case he speaks of. I think the surgeon should fit the truss himself as he is the one to teach the patient its use.

PHILADELPHIA ACADEMY OF SURGERY.

Meeting March 6, 1893.

THE PRESIDENT, Dr. William Hunt, in the chair.

John B. Deaver presented a paper on

AMPUTATION AT HIP JOINT: ENCYSTED CARTILAGINOUS TUMOR NEAR SUBCLAVIAN VESSELS: OPERATION ON THE FIFTH NERVE.

Mr. President and Fellows of the Academy: I will first present a case of amputation at the hip joint, done for osteomyelitis of the femur. At the time of the operation the patient was very much depressed from sepsis, consequent upon prolonged suppuration. The only point of interest in the case from an operative point of view is that during the amputation hemorrhage was controlled simply by an Esmarch tube applied round the thigh, above the trochanter and along the crease of the groin, being retained here by two pieces of bandage, one passed beneath the tube in front and the other beneath the tube behind, each of which was held by an assistant. An oval flap of skin and fascia was made, and the muscles divided down to the bone by a circular sweep of the knife. The superficial and deep femoral arteries, with their accompanying veins, were next tied separately, as well as those of the muscular branches which could be recognized. The tube was next loosened a little, and the small vessels, as they bled, caught with hæmostats. The tube was now removed, and an incision carried from the external angle of the wound up over the trochanter and into the joint dividing the capsular ligament, when the muscles were carefully separated from the bone and disarticulation completed. The amount of blood lost, I do not think, amounted to more than two ounces. The advantage this procedure offers over the Wyeth method is in not dividing the femur before the disarticulation is made, and further, that the amount of blood lost is not any greater, and that the vessels not being constricted for so long a time, there is less likelihood of consecutive bleeding.

The tumor I here present is one of sarcoma, removed from the side of the neck, which had its origin from the periosteum of the vertebræ. The symptoms presented by the patient were those of laryngeal obstruction, paroxysmal in character and attended by the expectoration of large quantities of mucus. The symptoms of obstruction were not caused by pressure inflicted upon the larynx or traechea, but from involvement of the laryngeal nerves. Before the operation was performed I very much questioned if the removal of the growth would suffice to relieve the obstruction, which was afterward proven by the same symptoms continuing until death, twenty-four hours thereafter. The dissection was not a very difficult one, as the mass lay behind the large vessels, the pulsation of which was scarcely perceptible. The great amount of infiltration around the vessels must by necessity have involved the laryngeal nerves as well.

The second specimen is one of cyst, in the wall of which is a circular piece of cartilage. It was removed from the subclavian region of a man who was injured at the battle of Appomattox, April 9, 1865. When the accident occurred he was standing under a tree. He was not able to say, definitely, whether the injury resulted from being struck by a piece of shell or by a piece of wood from the tree. The only noticeable trouble at the time of the accident was fracture of the clavicle. From that time to the present a sinus has existed in the neck which patient states has been operated on without success. He was referred to me by Dr. Hildenbrand, when, upon examination, the orifice of the sinus was plainly to be seen, immediately above the inner end of the left clavicle, from which was escaping a purulent discharge and through which, upon the introduction of a probe, could be felt, what was believed, most probably, to be dead bone. Examination with the fingers demonstrated the presence of a partly movable mass which was thought to be a detatched piece of the clavicle which had undergone necrosis. Operation revealed the presence of this cyst; it was attached to the sheath of the

subclavian vessels and to the pleura. Examination of the clavicle through the wound showed no trouble other than a slight enlargement at the seat of the original fracture. Examination of the cyst wall demonstrated very clearly the presence of cartilage.

T. M., aged fifty-eight years, white, Irish, slate-roofer; from a child had been very nervous, the slightest excitement or undue exertion throwing him into paroxysms of nervousness. When twenty-eight years of age, had an attack of small-pox which was followed by a weeping sore over the right inferior maxilla. This continued to discharge for six years, when it healed. Immediately after the healing of the sore he was attacked with neuralgic pains which were referred along the course of the inferior dental nerve. This pain continued at irregular intervals for six years, when he consulted a surgeon, who was supposed to have removed a section of the nerve near the dental foramen. Very little, if any relief followed this operation, when a second was performed by the same surgeon one year later; this was followed by relief for one year, when he had another attack of the pain. He now came under my care. I trephined the inferior maxilla over the angle and removed a section of the inferior dental nerve. This was followed by relief for a period of fifteen months, when the pain again returned. I now opened up the field of the old operation, exposed the proximal end (stump) of the nerve, excised a part therefrom, chiseled away the roof of the remaining portion of the dental canal, and removed the distal portion of the nerve as far as the mental foramen. This was followed by relief for sixteen months, when the pain returned, being referred, in addition to along the course of the inferior dental, along the side of the tongue. I now simply cleared out the field of the old operation, but this was not followed by any marked relief. I again operated, this time taking out a vertical section of the ramus of the jaw as far as the sigmoid cavity, and removed a further section from the proximal end of the inferior dental, and at the same time a section from the gustatory nerve. This was followed by relief. I purposely refrained from taking a section from the inferior maxillary nerve immediately after it passes through the foramen ovale, also from performing an intra cranial operation, as I am not as yet, by any means, convinced that these more radical procedures are warrantable until the milder ones have been done without success. I can recall a number of cases, both of neuralgia of the inferior as well as of the superior maxillary nerve, where I have followed this course in relapsing attacks, with satisfactory results, to convince me that a longer period of relief from pain is offered the patient than would result, perhaps, by the more radical operations, removal of the Gasserian ganglion, etc., in the light of the present statistics.

DISCUSSION.

Dr. John B. Roberts: Twice I have had occasion to remove large malignant growths from the neck, and in both cases the result was the same as in Dr. Deaver's case. In one case, a child, I had to tie the internal carotid artery, and the child died on the second day with symptoms of brain implication. The other case was that of a man with a deep tumor requiring ligation either of the internal jugular vein or of a large branch close up to the vein, I now forget which. I thought that he was going to get well, but he died on the fourth or fifth day with symptoms, the origin of which I could not determine. The wound was aseptic and nearly healed. He was found to be breathing very rapidly, and sank in a few hours in a sort of collapse. I could not tell whether there was implication of deeper organs or heart clot. No autopsy could be obtained.

Dr. J. Ewing Mears: In the case which I reported and to which reference has been made by Dr. Deaver, I removed two and one-half inches of nerve and submitted it to Dr. DeSchweinitz for examination, and the condition found was that of fatty degeneration. It is important, it seems to me, that our studies should be directed toward ascertaining if possible, what the pathological condition is in these cases of trifacial neuralgia. I think that all of us have come to the conclusion that operative procedures appear, in most cases, to be hopeless so far as permanent relief is concerned. It is possible that from studies in regard to the cause of the condition, we may be able to indicate some method of operation which may prove more successful.

Last spring the members of the American Surgical Association were shown in the Massachusetts General Hospital the results in five or six cases of operations upon the second and third divisions of the fifth nerve for neuralgia. In these cases an incision had been made over the temporal region, the muscle cut through and the zygoma divided. By pressing the tissues down firmly the operator was able to reach the second and third divisions as they emerge from the foramen rotundum and ovale. In these cases the relief had extended, if I remember correctly, over three or four years, and in one case five or six years. From the reports which are given in Boston, this appears to be a very successful operation.

To my mind, the question of interest is in regard to the pathological condition. If the disease is of central origin I do not see how any operation on the peripheral terminations of the nerves can be of service. Repeated operations, such as Dr. Deaver performed, of course, give temporary relief.

Dr. W. W. Keen: I quite agree with Dr. Mears that the question of the pathology is a most important one. In the cases where I have had a microscopical examination made the change has been found to be one of sclerosis. In one case there were spots of distinct hemorrhage into the nerve. These were almost macroscopic. I have never seen the inferior dental nerve so large as in this case. That patient had a return of the pain, and a second operation was done. So far as I could determine, a new nerve had formed, and, strange to say, there was a branch of this nerve which went inward through a foramen on the inner surface of the jaw. I saw no such foramen at the first operation. Dr. Dana some time ago published a paper in which he stated that he had found sclerosis of the vessels rather than of the nerve. However this may be, it seems to me clear that the sclerosis of the vessels or of the nerve is the chief thing, and that this is a distinctly senile change. That it does not appear in early life we all know, but only in later life, when sclerosis of other organs appear. This being the case, I think that the operation of choice should always be the peripherial operation. I should not think of endeavoring to remove or break up the Gasserian ganglion as a primary operation. I was told the other day that one of Mr. Rose's cases had shown symptoms of return, and this is what might be expected, as the sclerosis begins rather in the periphery and works backward. While medicine offers no benefit in the majority of cases, we can, as a rule, assure a patient that an operation will afford at least one or two years of relief. I presume that some of Dr. Deaver's operations consisted simply in reaming out the connective tissue about the stump of the nerve. This I have done in more than one case and, although under the microscope no nervous tissue could be found in the material removed, the operation gave as much relief as followed a pure exsection of the nerve. This being the case, it seems to me that we should, as a general rule, endeavor to give relief by such a simple operation rather than immediately to go to the foramen rotundum or ovale or within the skull and remove the Gasserian ganglion.

I noticed that Dr. Deaver referred to destruction of the ganglion as not a serious operation. I should consider it quite a serious operation, although there have not been a large number of deaths. Rose has done it six or seven times, with one or two deaths. Andrews four times, without a death. Hartley once, with recovery, and Dr. Roberts once, with recovery. Besides this, two eyes, and possibly more, have been destroyed. It seems to me that any operation involving so much traumatism is to be considered a very serious operation, and should not be undertaken except after the gravest consideration.

Dr. James M. Barton: As has been said by Dr. Mears, we have not yet arrived at the pathology of neuralgia. One suggestion is, that it is due to small aneurisms, which have been found in the diseased nerves. This view is supported by the results of the ligation of the external carotid for this affection. Nussbaum claimed that one-half of the cases are permanently cured.

I can also confirm what has been said by Dr. Keen. The most trifling operation on the nerve, the slightest stretching, even the division of the distal branches is apt to afford temporary relief, and the most serious operation will not do much more.

So rare, in my experience, is anything like permanent relief, that I exhibited before this Society, a few months ago, as

something unusual, a case of neuralgia of the second branch, of thirteen years' duration, in which I removed the nerve at the foramen rotundum, and where the relief had continued for five years. The man is still free from the disease.

Dr. Thomas G. Morton: I am at present attending a patient, who is now eighty-two years of age, on whom I operated some twenty years ago. After the excision he had entire relief for many years; then had a recurrence of pain, brought on, apparently, by a ride of five miles in a wagon which had no springs, in which he was severely jolted.

For the last ten or fifteen years, although enjoying, indeed, robust health, he has, at times, suffered intensely, and then again having entire immunity from pain. Now the suffering is only relieved by morphine injections. Swallowing, talking, any movement of the tongue, touching the skin of the face, or even the beard, provokes "thrusts of pain."

In another case—now more than twenty years since the operation—the patient has had entire freedom from pain. As a rule, sooner or later pain reappears; but in such cases there is no reason why the operation should not be repeated. Benefit is generally experienced from each operation, and for even a measure of relief, patients are willing to submit to any treatment.

William J. Taylor, M. D.,* presented a report of

A CASE OF FRACTURE OF THE THYROID CARTILAGE.

Charles E., forty-three years, a carpenter, was admitted to the surgical ward of St. Agnes' Hospital on October 6th, 1892, in a semi-unconscious condition. He was unable to give an account of the accident. but a fellow workman reported that he had fallen a distance of about twenty feet, from a scaffold upon which he had been working. No one saw him fall but when he was discovered he was unconscious and lying across a heavy piece of wood. When admitted into the hospital, a short time afterward, he was unconscious, could be roused from his stupor, but could give no account of himself. He was very much shocked. The right side of his face was badly contused, the right eye swollen and completely closed. He was bleeding from the nose, mouth, and left ear, and his general appearance was that of a man suffering from a fracture of the skull. The pupils were equal, and a very careful examination showed this diagnosis to be an error. He had great difficulty in breathing, could not swallow, the saliva ran out of the corners of his mouth, and when he attempted to speak his voice was husky and his articulation very indistinct; he could not speak above a whisper, and only that with the greatest pain and difficulty. There was little or no swelling of the neck, but when he regained complete consciousness he complained of great pain and discomfort in the throat.

A careful examination revealed a fracture of the thyroid cartilage on the right side, extending from above downward about on a line with the insertion of the thyro-hyoid muscle and about two lines anterior to it. The amount of displacement was very slight, but the mobility of the fragments could be easily demonstrated, and the fragments displaced and replaced again by manipulation with the fingers.

Dr. Smock, the laryngologist to the hospital, very kindly examined him very shortly after his admission, and confirmed the diagnosis of fracture of the thyroid cartilage. He reported also a rupture of the tympanic membrane about at the extremity of the manubrium process of the malleus. The nose showed hemorrhagic points on the septum on both sides.

Dyspnœa was pronounced, but there was apparently no emphysema about the seat of the fracture or in the neck. His symptoms were severe, and the pain and discomfort very great, but I did not think them sufficiently so to demand immediate relief.

Dr. White, the resident surgeon, was instructed to make all preparations for instant tracheotomy, and to send for me if the symptoms should increase in severity. He was to use his own judgment, however, and to operate at once without waiting for me to arrive should the necessity arise. No attempt whatever was made to apply a dressing. For some days the bleeding from the mouth persisted, and the difficulty in swallowing

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and dyspnœa continued, but gradually lessened, and by the end of three weeks was entirely gone. His voice still remained somewhat husky, but there was no longer pain or difficulty in swallowing. The left ear was treated by cleaning out the auditory canal with cotton, and insufflating daily aristol and boric acid.

Dr. Taylor read another paper on

MULTIPLE FRACTURE OF BOTH UPPER EXTREMITIES.

Margaret C., aged fifty-six years, a widow, and by occupation a monthly nurse, was admitted to my ward at St. Agnes' Hospital on the evening of October 19, 1892, suffering from the most remarkable number of fractures, considering the amount of constitutional disturbance, it has ever been my fortune to see. She was going down the cellar stairway in the dark when she missed her footing and fell to the bottom, some eight or ten steps. From the nature of the injury she must have put out her hands before her in the hope of breaking the fall.

She was unconscious for a short time, and was then brought to the hospital in a patrol wagon, but recovered sufficiently to walk from the wagon into the receiving ward.

Upon examination it was found that she had received a lacerated wound of the scalp, six inches long and extending down to the bone, and a deep lacerated wound of the lower lip about two inches in length. There was a fracture of the surgical neck of the left humerus and an oblique fracture of the middle one-third of its shaft; a contusion of the left elbow and a fracture of the lower end of both the radius and ulna of the same side. There was a supra-condyloid fracture of the right humerus extending into the elbow-joint, forming a T. A fracture of the upper third of the radius and of the ulna, and a fracture of the lower radius. In spite of this great number of fractures and of the serious lacerated wounds she was able to walk into the hospital, and seemed to suffer comparatively little pain. Her temperature was normal, her pulse good, and there was no evidence of shock such as would have been expected from the nature of her injuries.

There was much difficulty experienced in adjusting and holding in place the different fractures, but with care and patience and plenty of plaster-of-Paris this was accomplished. Her recovery has been most satisfactory, and she has for all practical purposes full use of both arms.

Such an extensive number of fractures led me to suppose there must have been some serious lesion of the bones, but the most careful inquiries failed to give me any clue to such a state of affairs. She was a large, strong, and, apparently, perfectly healthy woman. She had never before had a fracture of a single bone, neither was there any history of fracture in any member of her family. She was born in Ireland, and had lived there until a few years ago, and had always been in good health and a hard worker.

DISCUSSION.

DR. H. R. WHARTON: Some years ago the President investigated the subject of fracture of the larynx and proved that tracheotomy was indicated, and that patients usually did better after this operation.

I would ask the experience of members in regard to multiple fractures, whether they have found much constutional disturbance or many cases of sudden death following multiple fracture. My own experience has been that generally patients do well. Last summer I had under treatment a boy six years old, who had fallen off of one of the tunnels of the B. & O. R. R., and sustained a compound fracture of the nose, fracture of both bones of each forearm, and fracture of both thighs about the middle of the shaft. The patient did perfectly well with normal temperature for a week. He was doing well when I last saw him at 12 o'clock. In the evening of the same day the resident noticed that his breathing was peculiar, and an hour afterward the patient was moribund. He died of some cerebral complication. I thought that it might be a case of fat embolism which is said to follow fractures. I have seen another patient die very much in the same way with a simple fracture of the femur. No post-mortem was made in either case.

THE PRESIDENT: The conclusion of the paper which I wrote on fracture of the thyroid cartilage was that where emphysema and bloody sputa were present there had been up to that time no recovery where tracheotomy had not been

performed. I thought that tracheotomy should be done when the first symptoms were discovered. I found several cases similar to that reported by Dr. Taylor in which recovery followed without tracheotomy.

Dr. Thomas G. Morton: Some years ago I saw in consultation a lady, eighty-four years of age, who had gradually during ten years lost her vision from cataracts. Soon after this she sustained in a fall a fracture of both bones of the forearm, the humerus about the middle and the shaft of the femur near the great trochanter. Complete recovery from these injuries following showed such an excellent repair, that six months afterward I operated upon both eyes at the same sitting. Perfect vision followed in each, which continued until her death when in her ninety-seventh year.

Thomas S. K. Morton, M. D., then read a paper on (see next week.)

METATARSALGIA—WITH AN ACCOUNT OF SIX CASES CURED BY OPERATION.

DISCUSSION.

Dr. W. W. Keen: This affection has not seemed to me to be so frequent. I have seen only one case—this was a lady about going to Brazil. I operated five years ago on both feet. Since then she has been able to walk perfectly well and to dance.

Four years ago I had an attack which I thought might be the same. This attack interested me in connection with the diagnosis, because I had every symptom that Dr Morton has described. The attack came on about the time of my summer holiday, and I was unable to walk without limping from the excessive pain. When the pain came on I was compelled to go to my room or sit down where I happened to be, and remove the shoe. I had a pair of shoes made with a thicker and wider sole and a little larger, but without relief. When I came home I was tempted to have the operation done. I, however, consulted my friend, Dr. J. C. Wilson, who suggested a gouty origin, and put me on appropriate treatment, and the pain disappeared, and I have been perfectly well ever since. I mention this in connection with the diagnosis, as here there was the pathognomonic sign of having to sit down and remove the shoe when the pain came on.

Dr. Thomas G. Morton: As early as 1870 my attention was first directed to this painful affection of the foot, and I then felt satisfied that I had a malady which had not previously been described. In the *American Journal of the Medical Sciences* for January, 1876, I published an account of this painful local affection, and subsequently reported a number of cases which I had successfully operated upon. Later, in various journals the subject received attention until at present the disease is generally understood. In 1891, Dr. E. H. Bradford published an interesting account of a number of cases which had come under his care, and more recently numerous authors have given their experience.

A medical man from Hagerstown, Md., once called upon me and stated that he was seeking relief from a neuralgia of the foot, which was so terrible that he was willing even to submit to amputation of the limb. The only relief he obtained was by injections of morphia. The operation was completely successful, and the doctor went to his home on the third day afterward, and has never had any pain since.

I have generally found the disease in one foot; but occasionally in both, and have operated on both feet at the same sitting. Now and then I have amputated the toe instead of resecting the joint. The pain in many cases is slight, and only requires a proper shoe and a flannel bandage to keep the toes from rolling; in others nothing except an operation will suffice. In regard to shoes, a shoemaker of this city told me that one of his customers had more than fifty pairs, hoping in each new pair to have greater relief.

The point has been raised as to whether the painful nerve might not be excised instead of excising the joint of the toe. I apprehend there would be great difficulty in finding the nerve, and unless all the soft parts surrounding the joint were removed, some branches would remain; while if the pain is due, as I think it is, to the peculiar relation of the fourth joint as compared with the third and fifth, no treatment except joint removal will answer.

W. W. Keen, M. D., presented the following

METHOD OF OPERATING ABOUT THE FACE BY WHICH BUT LITTLE BLOOD ENTERS THE MOUTH.

I wish to call attention to a method of operating about the face which is not generally followed and which may be new to some. It is particularly applicable to epithelioma about the lip, of which I have had two severe cases in a comparatively short time. In one there was extensive epithelioma requiring the removal of a portion of the upper lip, the lower lip, and the cheek. The other case was one of epithelioma of the cheek, and is also of interest from the fact that the patient had originally been operated on forty years ago by Dr. George R. Morehouse. A microscopical examination was made at that time, and the tumor was said not to be epithelioma. When I saw the man the disease extended from the angle of the mouth back to the molar teeth, and from one jaw to the other. It was on the inside of the mouth exclusively, except at the angle where the entire thickness was involved. The external layer of the cheek seemed to be entirely free. In operating I placed the patient on a flat table with the operated side turned a little down and cut through the skin down to the mucous membrane, but not through the latter. I then secured all the vessels *before* opening into the mouth. In this way I prevented blood from entering the mouth and also lessened the total loss of blood. In this case Stenson's duct was involved in the operation. I found the duct and stitched it to the mucous membrane of the upper jaw, and there has not been the slightest trouble from fistula. The incision was a very wide V, the linear incision corresponding to the apex of the V being on the cheek, and the widest part is the base of the V inside the mouth. I am sure that those of you who try this method will find it satisfactory.

William Hunt, M. D., reported

A CASE OF APPENDICITIS.

This specimen was removed from a young girl who presented every sign of good health, but had been sent to the Pennsylvania Hospital by a physician outside, who had diagnosed possible stone in the bladder from the general symptoms. She was examined by the residents on admission, and they thought that they felt a stone. I saw the patient but once and I examined her for stone, but did not find one. I decided to let her rest and repeat the examination under ether the following day. At three o'clock she was taken with severe pain in the lower part of the abdomen. At eight o'clock she seemed to be doing well, but at eleven o'clock there was a return of the symptoms, and she died in two or three hours.

The coroner's physician was sent for and made an examination, and the death was ascribed to "idiopathic peritonitis." I and Dr. Morton were telephoned to this effect and immediately sent back word to make further examination. It was then found that the appendix was large and swollen and had a large perforation in it. The abdomen was full of pus. It was afterward learned that she had been ailing for two weeks, but there were no symptoms referable to the appendix.

DISCUSSION.

DR. THOMAS G. MORTON: I have seen more than one case where it was impossible to make a diagnosis; the most remarkable instance was the following: In March, 1890, Dr. DaCosta and I were summoned to Trenton, N. J., to see a patient with Dr. Phillips, of that city. The patient was about forty-two years of age; he had been apparently in excellent health three days before; he became obstinately constipated and had nausea and had vomited; little or no abdominal pain and no swelling, a normal temperature, no chills, and pulse showed no acceleration. The bowel simply refused to respond to cathartics. Inquiry showed that there had been no former attack of pain in the appendix region. Calomel and fractional doses of podophyllin were given.

The following day there was a subnormal temperature and great prostration, but no evidence of local or general peritonitis, and the diagnosis could not be cleared up. Median exploratory abdominal section showed a foul abscess in the right iliac fossa; an inflamed gangrenous appendix; the ileum was covered with lymph, and for several inches showed structural change. Two days subsequently the patient died.

In reviewing this case I can see no way by which the nature of the case could have been determined; it seems hardly possible that perforative appendicitis and intestinal gangrene should not present at least some positive symptoms, yet in this instance, none such were present.

DR. W. JOSEPH HEARN: I had a case at the Jefferson Hospital where the man had walked to the hospital the evening before, with a temperature of 101°. Dr. Keen saw him the next day, and we agreed that it was a case of appendicitis. Operation was done and a quart of pus evacuated. The man died subsequently.

DR. T. S. K. MORTON: In this connection, as illustrating how patients with very serious disease are able to perform almost incredible exertions, I may mention a case of strangulated hernia that walked to the Polyclinic Hospital to-day —quite a long distance—after his physician had made strong taxis for half an hour. The strangulation had existed for five days, and when I operated, the gut was found gangrenous.

Artificial Introduction of Labor.*

By H. Fehling, (*Berl. Klin. Wochen.*, 1892).

The author hopes by the improved methods of antisepsis or asepsis to reduce the number of Cæsarean sections by artificial induction of labor. The time for the induction of labor should not be before the thirty-fifth and not after the thirty-seventh week. A contracted pelvis is the most frequent condition which calls for the induction of labor, particularly flat pelvis.

The operation is not so satisfactory in a generally contracted pelvis. A careful examination is in all cases necessary. Particular attention should be given to the fact that in multiparæ there is usually an increase in the weight of each successive fetus. The operation should not be practiced where a pelvis is less than seven cm. in its true conjugate.

In light cases of osteomalacia, normal delivery may be expected since the pelvis may admit of some stretching. Further indications for the induction of artificial labor may be recognized in cases of retrocervical fibroids, and all tumors of the bony pelvis, as also in cases of marked inflammatory masses situated in the pelvis; the cases, however, which call chiefly for this treatment are those of chronic parenchymatous interstitial nephritis.

Cardiac diseases rarely produce symptoms sufficient to consider this operation; on the other hand, however, advanced cases of tuberculosis may serve as an indication.

A careful measurement of the pelvis is in all cases the most important, and the theories of Muller, who states that the induction of labor should not be practiced as long as the child's head can pass into the pelvic cavity, deserve careful attention, as well as that of Prochownick, who places stress upon an anti-fat treatment, which consists in avoiding all carbo-hydrates and fluids.

In order to facilitate the dilatation of the os internum he advises warm, not hot, vaginal douches six to twelve litres, twice daily. If this remains without the desired result an elastic bougie should be passed into the uterus and allowed to remain there several days, in case no fever presents itself.

If the pains have set in, a normal spontaneous delivery may be expected, all operative procedures are contra-indicated unless fever should set in.

*Translated for THE MEDICAL AND SURGICAL REPORTER by Marie B. Werner, M. D.

"MAMMA, be late suppers bad?"

"Yes, my child, very bad."

"What makes 'em bad?"

"Why, it injures the health to eat just before going to bed."

"Oh, I thought maybe it injured the health to go to bed directly after supper."

The official reports of the cigarette manufacture, which are carefully taken by the Internal Revenue Department, gives a total of 16,581,646,440 cigarettes as the output for the past eight years. Taking the average length of each cigarette at three inches, this would make a total of 4,145,411,611 feet for the entire roll. Dividing this by 63,360, the number of inches in a mile, would make a total of 65,426 miles, or a cigarette girdle extending nearly three times around the earth. Calculated at the lowest retail rate of 50 cents per 100, the cigarette smokers of the United States spend $16,052,019 a year on their hobby.—*Nat. Med. Rev.*

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SATURDAY, MAY 6TH, 1893.

EDITORIAL.

MEDICAL SCHOOLS—THEIR MANAGEMENT.

Elevate the standard and improve the course of study in our medical schools is the cry which burdens almost every presidential address at the medical society meetings of each recurring year. This is commendable. It is a much needed reform. The standard raised, the course of study made broader and more generous, the time lengthened, and those small and puny mushroom schools which have sprung up like Jonah's gourd will, like it, wither within the coming day. Schools which now exist only as an advertisement for men who aspire to the rank of professor, without possessing the qualifications such a title should carry with it, will then disintegrate for lack of students.

The education of the laity must proceed hand in hand with the elevation of the medical standard till they no longer ask whether the doctor possesses a diploma, but whether that diploma is sufficient guarantee that he has pursued such a course of study as to fit him for the responsibilities of his duty as medical guardian of his community. The public must discriminate between the M. D. granted by the school which requires but two years' attendance on didactic lectures for a few months only and that given by the school which, richly endowed with every facility for acquiring knowledge, sends its graduate out fully equipped for his struggle with disease and death. People are too apt to look only at the title and judge one doctor as good as another without pausing to think what training he has had to entitle him to their confidence.

When the mere possession of a diploma does not carry with it a license to kill or cripple and when the practitioner of medicine must give some proof of his qualifications before he is permitted to take the health and the lives of his fellows into his care, then will students seek the best, and our great schools, located in large cities, possessing every laboratory and clinical facility for imparting instruction, will have classes worthy to be taught by the ablest men. The law of the survival of

the fittest will operate to the benefit of both the doctor and the doctored. Such a medical millennium is devoutly to be wished by all who have no axes to grind and who desire only that which conduces to the welfare of suffering humanity.

That such a state of affairs does not now exist, is due to the apathy of the public in regard to such matters, to the selfishness of would-be professors and the conscienceless egotism of small medical politicians who constitute a class of medical parasites which infests every small city, and is not entirely wanting in our larger ones, and who, vermin like, seek their own sustenance at the expense of every thing upon which they fasten.

The reforms just enumerated, while much to be desired are only a little of what must come, ere a medical education can be sought by the young men of our land under as favorable conditions as can be found in the pursuit of the various other lines of knowledge that go to make up a liberal course of study.

Too little attention by far is paid to the health and comfort of the student. In fact medical colleges as a rule set at naught every law of hygiene and violate every principle which conduces to a better understanding of the laws of health. Their students are rushed from clinic to clinic and from didactic lecture to laboratory or dissecting room until they have scarcely time to eat or sleep. The lecture rooms, laboratories and hospital amphitheatres are crowded and poorly ventilated. The foul air which the young disciples of Aesculapius are compelled to breathe has an enervating effect upon both body and mind. Young men often come away at the end of the finishing year feeling as though the battle of life was almost ended instead of having just begun.

Most of the schools are poorly lighted. Very often they depend largely upon a sky light over the centre or have to resort to artificial illumination in order that the work may proceed. They are as poorly warmed as lighted and, while parts of the center are scorched by the heat that brings to mind that place not named in the "*New Edition*," the circumference of the circle is suggestive of "Greenland's icy mountains." Add to all these defects the fact that filth itself is personified in the arrangements and furnishings of the different rooms and we may well marvel that students accomplish anything amid such environments.

The methods of selecting or appointing teachers or members of the faculty cry just as loudly for reform as any other part of medical college machinery. In the first place to get a position as a member of the faculty in some medical colleges requires more "influence" than learning and much more politics than brains. In the majority of cases the learned and successful men of the profession are too busy or too earnest to turn their attention to medical politics; and a scramble for place is so foreign to their mental make-up that they let positions go to mediocrity and brazen effrontery rather than enter a contest with men immeasurably their inferiors. Men who have nevertheless elevated skullduggery to a position as one of the fine arts.

When politics has exhausted itself, chairs have been known to be huckstered out to great wealth or family influence. Some noble sire with a large bank account has a relative whose mental endowment is not built on the same specifications as his dady's or his uncle's certificate of deposit. Things are then evened up by substituting a noble metal for a noble mind.

If the wealth that is given for erecting a new school in order that its founder's name may be known among men—schools that lead a precarious existence for lack of funds to properly carry on their work—if such wealth be applied to the endowment of schools already existing and earnestly endeavoring to give their students the best

training possible, then the men who, by their hard work and ceaseless application, have produced results that well entitle them to the position of teachers will have some inducement, beside the empty rank of professor, to lay aside the druggery of practice and devote their time to the proper education of our medical classes.

There is a practice too of keeping young men for three years, robbing them of time and money and finally plucking them. Such a method of dealing with students is worse than stealing. For in addition to losing both time and money, the young man has a stigma put upon him that sticks through life and is thrown at him by business rivals wherever he may go. A set of teachers that cannot find out sooner than three years whether a student can or cannot learn and whether or not he has natural ability and moral character sufficient to become a member of the medical profession, ought to be "investigated" by the trustees. This ought to be done to determine whether such teachers can impart instruction or are mere talkers against time.

The custom of having a great banquet at the close of the session to be paid for by the students or out of the $25.00 graduating fee, should be relegated to the past. If old men want to get drunk and grow mellow and loquacious they should foot the bill themselves and glorify and mutually compliment each other till they fall under the table if they wish to pass away the night in that way. The student at the end of his career as such, has usually spent all the money he has and all he can borrow. He should not be robbed for the worship of Bacchus.

"Elevate the standard and improve the course of study" is well enough as far as it goes but it is not all. Elevate the public to discriminate between the well trained, thoroughly equipped practitioner and the one who has gained his diploma in the least possible time and with the least possible outlay of brains. Elevate our generous wealthy men to the idea of bestowing their wealth where it will do the most good to the many and not where it will make the most niose and flattering adulation. Elevate the professor, make him a man without reproach—fit to be a teacher. Elevate the student to a proper understanding of his work—the practice of a God-given art, not a mere money getting scheme to be conducted on purely business principles.

Dr. H. S. Houghton says, in a recent number of the New York *Medical Journal*, that one must look upon the patient who has just passed through the third stage of labor as a sufferer of traumatism, has been wounded, and, therefore, her case belongs to the domains of surgery. As the first law of surgery is rest, so the lying-in period is a period of rest, so modified that the patient emerges from it a well and perfectly healthy woman. After the birth of the child, the mother must look forward to a period of six weeks of convalescence devoted solely not only to getting well, but to getting sound and strong. This period is divided into two weeks of absolute rest in bed, one week of alternate resting in bed and moving about the room; the fourth, in gaining the effects of fresh air and sunlight, and the last two in gradually resuming the household duties. By carrying out this plan, as given in detail in the paper, the writer says we may hope to do away with the too frequent evil consequences of childbirth.

The very latest addition proposed to the calendar is "Sanitany Day." This is to be a fixed festival, a given day in May to be devoted to the cult of the goddess Hygeia, and to the pious contemplation of bacteria and kindred topics calculated to make people cheerful, healthy and wise.

Rollo—Tell me, pa, is there any difference between common salt and chloride of sodium? Mr. Holliday—Yes, Rollo, a great difference. Salt is 2 cents a pound at the grocer's, while chloride of sodium is 50 cents a teaspoonful at the druggist's."

TRANSLATIONS.

CLINICAL INVESTIGATIONS REGARDING THE ENLARGED THYROID AND OPERATIONS FOR ITS RELIEF.*

By Prof. Kroelin, (*Zeurich Beitr. z. Klin. Chir.* ix., '92.)

The author had performed the operation for removal of goitre 202 times between the years of 1880 and 1892. Ten of these were done from 1880 to 1884, four of which ended fatally; 181 were cases of a benign character and were performed between the years 1884 to 1892, with three deaths. Among the 202 operations there were eleven cases of malignant degeneration, all of which required grave surgical interference. Five patients died during the operation or directly afterwards. Of the 191 cases of benign tumors three-fourths belonged to the female sex. The indications for the operations are not always for cosmetic improvements, but were frequently due to dyspnœa which, in some cases, were of so grave a character that when seen, the operation was performed almost immediately after. The seven deaths which occurred in 191 cases were caused as follows: One to fatty heart and subsequent collapse; two to suppurative septic mediastinitis; one to bilateral pneumonia; one to marasmus; one to suppurative bronchitis and pneumonia; one was due to the so-called "goitre death" in a tuberculous patient with fatty heart. The operation in seven consisted of total removal; 133 of partial extirpation; four to enucleation and in forty-six the goitre had undergone cystic degeneration; one case to intra-capsular eridement. The author adopted the method of extirpation with careful ligation of each vessel before cutting. Kroelin has carefully studied the symptoms of this disease and arrived at the following conclusions:

The choking attacks often occur in patients suffering from goitre in whom the larynx and vocal cords are normal.

The patients in which the diagnosis of unilateral paralysis of the vocal cords has been made (either partial or complete) may suffer years from dyspnœa but never have an actual choking attack.

Extirpation of the goitre will cure the choking attacks if every portion of the growth is removed that has produced pressure upon the trachea.

This result may be looked forward to with certainty even if paralysis of the vocal cords has been present before the operation.

The paralysis of the vocal cords will remain after the operation while the choking attacks will be cured. Should choking attacks occur after the operation, the cause is not in the larynx but will be found to be due to some external pressure upon the trachea (Recidir der Struma).

Not all goitres pressing upon the trachea will produce acute attacks of choking, since the pressure is sometimes of slow growth and produces a chronic dyspnœa. This form of dyspnœa may gradually become unbearable and the patient die from an increasing poisoning by carbolic acid gas.

The sudden attacks of choking and the so-called "goitre death" can not, however, be explained by the chronic carbonic acid gas intoxication, but there must be an additional reason.

This additional reason is the sudden increase of pressure against the trachea walls by which the contracted space is thoroughly closed.

These sudden increases in pressure are not to be sought in the tumor itself, but are due to certain extraneous surrounding influences which have pressed the tumor as a wedge against the trachea walls.

In mobile or wandering goitres, a certain dislocation of the tumor from a roomy space into a contracted one may sometimes be met with and produce a sort of incarceration, by which the goitre itself does not suffer so much as the more compressible trachea walls.

It is, however, more frequently noticed that the sudden increase of pressure of the tumors is induced by certain mechanisms in respiration, which may be released suddenly and involuntarily. Various respiratory muscles take part in this action. Those of principal importance can be

*Translated for THE MEDICAL AND SURGICAL REPORTER by Marie B. Werner, M. D.

mentioned as the throat and larynx muscles, the sterno-cleido-mastoid, the scaleni, the sterno-hyoid and sterno-thyroid.

The amount of pressure exercised upon the trachea and its resulting attack of choking, is due, first to the strength of the muscular action which pushes the tumor tightly against its walls.

In closing, the author makes the following statement as interesting to those collecting statistics for this operation:

Three patients were deaf and dumb upon whom this operation was performed; three were epileptics; one suffered from diabetes mellitus; six of tuberculosis of the lungs; four were pregnant; six suffered from Morbus Basedorrii.

In all these twenty-eight cases recovery was complete and in no case did a complication arise.

Of particular interest were the results in Morbus Basedorrii in which the recovery was complete.

"Myotomy During Pregnancy."

By Dr. Flaischlen, (*Berlin Cento. Bl. f. Gynæcol.* xvi, 92).

The patient, three months pregnant, was operated upon for the removal of pedunculated myoma. Another was found in the wall of the uterus, which was also removed. The surface of the womb was united by continuous catgut suture. The peritoneal covering of the uterus was united by fine silk sutures.

The patient made a good recovery and at the end of pregnancy gave birth to a living child.

BACTERIOLOGICAL NOTES.

The Anti-Cholera Vaccination.

Klein (*British Med. Jour.*, March 25th, 1893), records the results of his experiments concerning the Hoffkine cholera vaccination. He takes up agar against Hoffkine's method "which supposes that the lesion produced by intra-peritoneal inoculation of the cholera germs is characteristic to that species and that the fact that, under ordinary conditions, the animal dies after such inoculation, proves its specific pathogenic properties, and that if we protect the animal against death from such inoculation the claim may be made that the animal is protected or inoculated against cholera." Klein has repeated Hoffkine's method with six bacilli, viz.: cholera bacilli; vibrio of Finkler; bacillus coli; the proteur vulgaris; the bacillus podigiosus, and the bacillus of typhoid fever. In all cases the injection was followed by distinct illness. The guinea pigs generally die within twenty to twenty-four hours. The lesions produced by the different germs were practically the same. The same fatal results were obtained by injecting (intra-peritoneal) a slightly larger quantity of sterilized culture of these bacteria. "As only the bacteria themselves were used (scraped from the surface of agar cultures) for the injections it follows that all these six species of bacteria contain in their protoplasm a poisonous principle, which appears to be the same for all species, since the disease produced and the anatomical changes found on *post-mortem* examination were the same." The author found that smaller non-lethal doses (one-fifth to one-tenth of a culture) injected into the peritoneal cavity of guinea pigs produced temporary illness, and after recovery they were found to be refractory to otherwise fatal doses of the same species of bacteria. This condition was produced by the injection of non-lethal doses of both the living and sterilized cultures. The most interesting point was, that a guinea pig that was made immune to any one of these six bacilli (by intra-peritoneal injections of non-lethal doses) was also immune to any one of the others; for example, a guinea pig that was made immune or refractory to the *proteus vulgaris* was also immune to Asiatic cholera. He also found that repeated subcutaneous injections would render the animals refractory to the intra-peritoneal injection of an otherwise fatal dose.

Klein concludes that these six bacilli contain the same poisonous substance in their cellular protoplasm but it must be

carefully distinguished from the substances (ptomaines, specific toxins, etc.), which are elaborated by them in nutritive media including the animal body. These differ (*a*) from one another; and (*b*) from the intra-cellular poisons. The intra-peritoneal inoculation increased the virulence of the different bacteria as indicated by Hoffkine for the cholera germ. He also found, "that guinea pigs that were made refractory by the intra-cellular poisons were not immune to the specific toxines or against the growth and multiplication of the bacilli and the production by them of their specific toxines in that refractory body." [This fact, if sustained, demolishes to a great extent the anti-cholera vaccination as set forth by Hoffkine. The work is also of much value on account of the similarity of the results to those obtained by Roux and Rodet by intra-peritoneal injections of the typhoid and coli bacteria by which they attempted to prove the identity of these two species of bacteria. We now have evidence that at least six species of bacteria will produce the same results and, consequently, the relationship established by Roux and Rodet between the coli and typhoid bacilli does not hold. The results obtained by Dr. Klein should cool the over-enthusiasm which is being manifested in some places with reference to cholera-vaccination until more is learned of the method than is now known.—ED].

The Purification of Drinking Water by Sand Infiltration; its Theory, Practice, and Results.

Sedgwick (*Journal of New England Water Works Association*, Vol. VII., No. 2), gives a full account of our present knowledge of sand filtration of drinking water. It is humiliating, but it is true, that the sanitary condition of many of our otherwise excellent water supplies is to-day discreditable to American Science, American engineering and American civilization. "So long as the water supplies of important cities like Chicago, Albany, Lawrence and St. Louis remain in their present condition so long will they constitute a blemish upon our fair civilization." It matters not how wonderful the tunnels, or how magnificent the pumps of any water works, if they convey to the confiding citizen the deadly germs of disease they must be considered failures.

Heretofore the selection of the sources of water supply has been influenced by the belief that impure water quickly, naturally and effectively purifies itself. It can no longer be claimed that the dangers of polluted drinking water are doubtful or imaginary. The purification of water from a sanitary standpoint is the most difficult kind of purification. The principal natural methods contributing to the sanitary improvement of water are *sedimentatives, storage* and *filtration*. Light, temperature, pressure and electricity have their effects, but an impure water is purified in nature chiefly by settling, for the bacteria have weight, and at least in some stages of their development, tend to settle.

Storage has an immense sanitary value. When allowed to stand some of the bacteria settle to the bottom and eventually perish; some are destroyed by light, but the disease germs, which are in water apparently somewhat short-lived, perish. It is also a fact that living bacteria largely disappear in the pipes of a service. To these facts we must look for the explanation of the limited infectiousness in some cases by water obviously badly polluted with raw sewage.

The natural method, which is more common and more trust-worthy, is *filtration* through the earth or sand. The sand filter was first introduced in England in 1839. This method is used most extensively in European cities, and the results that are obtained in comparing the death rate, from germ diseases, of the cities which use the sand filter and those which do not, are sufficient to guarantee its success.

The final conclusions reached by Dr. Sedgwick are: (1) *Every surface water before it is used for drinking purposes should be freed from all infectious substances.*" (2) *For this purpose, whenever large quantities of water are to be treated, sand filtration is at present the most convenient and effective method.*

Dispensary Physician. — "Take this medicine three times a day after each meal."

Dusty Rhodes.—"Haven't you forgotten to give me part of the prescription?"

Dispensary Physician.—"What?"

Dusty Rhodes.—"The–er–meal ticket. —*Puck.*

The Bacillus Coli Communis in Inflammatory Affections of the Anus.

A very interesting series of observations have been made by Hartmann and Lieffering (*Bull. de la Soc. Anat.* No. 3, 1893) on the pathogenic effect of the coli bacteria in the causatives of hemorrhoidal phlebitis and of some forms of perineal abscess. Their opinion is based upon the results of a careful examination (microscopical) of sections of blood-clots, and also cultures of blood taken from an inflamed external hemorrhoid.

The preparations made by the authors indicate that the inflammation is the result of the penetration of the coli bacteria into the affected pile as these bacteria could be seen in great numbers in the section of the clot and in cultures from the blood. On the other hand cultures made from the blood of non-inflamed piles remained clear. It has long been recognized that a painful and swollen condition of the external pile was the result of a phlebitis, and due to coagulation dependent on inflammation of the coats of the veins, but heretofore there has been much doubt as to the primary cause of the inflammation.

The Etiology of Emphysematous Cellulitis.

Frænkle (*Centralblatt f. Bakteriologie u. Parasitenkund*, xiii., Vol. 1, 1893), announces the result of a careful investigation into the cause of four cases of this affection. From the bacteriological examinations he was able to isolate the same bacillus from each case. In appearance it resembles somewhat closely the bacillus of anthrax. In is non-motile, anærobic and produces gas when grown under anærobic conditions. (The gas is supposed to be identical with that in the tissue though no analysis was made). No spores have been observed. Its pathogenic effect was determined by the subcutaneous inoculation of guinea pigs. It produced extensive cellulitis with gas. In the original cultures the bacillus was associated, in three or four cases, with pyogenetic cocci.

[It should be observed that this germ differs very considerably from the gas-producing germ found in the blood vessels, by Prof. Welch and Dr. Nuttall (*Bulletin Johns-Hopkins Hospital*, 1892, p. 81) and is undoubtedly a different species.—Ed].

ABSTRACTS.

THE PROTEOLYTIC ACTION OF PAPOID.

The juice of the papaw has long been known to possess the power of dissolving and digesting proteid matter. At one time, this peculiarity was looked upon as something quite unique, but in recent years other like ferments have been discovered in the vegetable world, and to-day several proteolytic ferments of vegetable origin are more or less widely known. Curiously enough there is nearly always associated with the proteid-dissolving ferment, a rennet-like ferment, just as we find the two ferments associated in animal secretions. Thus, in gastric juice, pepsin and rennet are close allies and companions, and similarly in the papaw a proteolytic ferment and rennet-like ferment are associated either in the form of a single substance endowed with the two functions, or more probably as two closely related enzymes.

Papoid, a preparation from the papaw plant, has the power of digesting to a greater or less extent all forms of proteid or albuminous matter, whether coagulated or uncoagulated. Furthermore, papoid is peculiar in that its proteid-dissolving power is manifested in a neutral, acid and alkaline medium. To be sure, the proteolytic power of the ferment is not quantitatively the same under the above three distinct conditions, but it is plainly manifest in acid and alkaline solutions, as wel as in a neutral fluid, provided of course the percentage of acid or alkali is not too large. With coagulated proteids, as cooked beef proteid, the highest digestive power is obtained in the presence of 2–4 per cent. sodium bicarbonate. The relative ferment action in the presence of acids and alkalies is well exhibited in the following series of experiments with coagu-

lated beef proteids.

The beef proteids used were prepared by passing lean beef through a hashing machine, washing it thoroughly with water until all blood was removed and it had become nearly white in color, after which it was completely coagulated by being boiled in water, and then pressed as dry as possible. So prepared 10 grams of the beef proteids contained 3.7438 grams of dried proteid (dried at 110° C.)

Each digestive mixture contained 0.5 gram papoid, 10 grams of the prepared beef, and 25 c. c. of water in which were dissolved the indicated percentages of acid and alkali.

The digestions were warmed at 45° C. for five and a half hours, with frequent stirring, after which the undigested residues were filtered off on weighed filters previously dried at 110° C. The undissolved matter was next washed with hot water until all soluble products were removed, then dried at 110° C. until of constant weight.

From these results it is manifest that papoid will digest and dissolve cooked beef proteids with a fair degree of readiness, and further that the ferment acts most energetically in the presence of 2–4 per cent. sodium bicarbonate, while a slight addition of acid increases the solvent action a trifle over that of the neutral solution. Hence, papoid is peculiar in that it will digest proteid matter in a neutral fluid, in this respect resembling trypsin, the proteolytic ferment of the pancreatic juice. But trypsin is a ferment associated with an alkaline secretion, and as a proteolytic agent acts to advantage only in alkaline fluids. Papoid agrees with trypsin in so far that its proteolytic action is increased by the presence of an alkaline medium, in some cases greatly increased by the presence of 2–4 per cent. sodium bicarbonate. On the other hand, the action of papoid in a neutral solution is increased by the addition of very small amounts of hydrochloric acid, and in some cases the increase is very marked.

Another action to be noted as characteristic of papoid digestion is the peculiar change it produces in the proteid acted upon. The exact character of this change is dependent upon the condition of the proteid and, in part, upon the character of the medium in which the digestion is carried on. Thus, with a coagulated proteid, as cooked beef, there is a rapid disintegration and falling apart of the proteid into tiny fragments, until at last the undigested matter has the character of a pultaceous residue. Hence, in this respect papoid resembles trypsin. This peculiarity is especially noticeable in the digestion of cooked beef, or boiled blood-fibrin, with papoid in the presence of 0.1 per cent, and 0.2 per cent. hydrochloric acid. The natural tendency of the acid under such circumstances, especially at 45° C., is to cause the beef fibres to swell up, but this tendency is gradually counteracted by the presence of papoid and eventually, but more slowly, there comes about the same disintegration of the proteid seen in a neutral or alkaline solution. With a raw, or non-coagulated proteid, on the other hand, there is at first, especially in an alkaline solution (sodium bicarbonate) a softening action, which is in great part independent of the alkali; followed it may be, by the formation of an almost solid homogeneous, jelly-like mass, in which the fibres lose their individuality, thus differing from the swelling produced by the alkaline fluid alone. As digestion proceeds, the jelly-like mass gradually becomes thinner from the secondary or solvent action of the ferment. The same softening, though less pronounced, shows itself with a neutral solution of papoid, followed by more or less disintegration, although the residue never takes on the appearance seen in the digestion of a cooked proteid.

Another point characteristic of papoid is its ability to act in the presence of a small amount of fluid; indeed, its best and characteristic action is seen only when a small volume of fluid is present. In this respect it differs very markedly from the animal ferment pepsin, and for this reason any direct comparison of the two ferments is practically impossible, since they act best under such widely different conditions.

Still another peculiarity of papoid is its great resistance to the ordinary destructive action of high temperatures. Animal ferments, especially those concerned in the ordinary processes of digestion, act most energetically, as is well known, at approximately the body temperature. Raising the temperature to near 60° C. quickly brings about a diminution in digestive action, followed by a gradual de-

struction of the ferment. Lowering the temperature below that of the body is likewise accompanied by a diminution in digestive action, although ordinarily less marked than the inhibition caused by a rise of temperature. With the animal proteolytic ferments pepsin and trypsin, digestion is very slow at, say 20° C. With diastase, the vegetable amylolytic ferment, the most rapid conversion of starch into sugar takes place at about 55° C.

A study of papoid digestion with reference to the influence of temperature on the rate of proteolytic action has shown several very interesting results. Thus, in an acid solution (boracic acid) a larger amount of cooked beef proteids is dissolved at 70° C. than at any lower temperature, while even boiling the ferment solution fails to destroy entirely the action of the ferment; a fact which is especially true of an alkaline (sodium bicarbonate) solution of papoid. Furthermore, at a comparatively low temperature, 20° C., digestion is very pronounced in both a neutral and acid solution of the ferment, while in an alkaline fluid digestive action is almost as great at 20° C. as at 45° C.

The three series of experiments illustrative of these points, were made at the same time and under exactly the same conditions, excepting the specified variation in temperature and reaction. Each digestive mixture contained 0.5 gram papoid, 10 grams of prepared cooked beef (equivalent to 3.5538 grams of dry proteid) and 25 c. c. of fluid; the latter consisting of water alone in the neutral series, of 2.0 per cent. boracic acid in the acid series, and of 2.0 per cent. sodium bicarbonate in the alkaline series. The digestions were continued at the given temperatures for six hours, the fluid itself being brought to the required temperature before the proteid was added.

We notice in these results that in an acid solution (boracic acid), papoid is slightly more active than in a neutral fluid, while in an alkaline solution (sodium bicarbonate) the activity of the ferment is increased very greatly; and further, that this relationship holds good practically for all temperatures. The most striking facts, however, brought out by these experiments are: first, the marked activity of the ferment at the comparatively low temperature of 20° C. (the temperature of the room at the time the experiment was tried), especially in an alkaline fluid; and secondly, the retention of proteolytic power after the solution of the ferment has been actually boiled. Here, too, the alkaline solution appears to exert a certain protective influence upon the ferment, which is difficult to explain. Certainly, sodium bicarbonate alone will not dissolve a coagulated proteid to any great extent, as has been demonstrated in connection with other experiments. Hence, we are forced to the conclusion that in an alkaline fluid especially, papoid is extremely resistant to the inhibitory effects of low and high temperatures, so characteristic of most known ferments. This being true, it is obvious that papoid in the presence of sodium bicarbonate possesses special advantages in cases where it is desired to soften or digest tissue or other proteid matters, at comparatively low temperatures. At the same time, as before stated, it is a ferment very resistant to the ordinary destructive effects of high temperature, and is especially characterized by exhibiting its maximum digestive power at about 70° C.

The mere fact that papoid exerts a certain amount of solvent action on proteids does not necessarily imply a true digestive action akin to that of the ordinary digestive ferments. As is well known, the latter agents exert their solvent action by virtue of certain chemical changes they induce, as a result of which new and for the most part soluble products result, of of which the proteoses, or albuminoses, and peptone are the principal representatives. It is to be presumed, however, that papoid acts in a similar manner. Indeed, Martin long ago pointed out that the proteolytic ferment of papaw juice, acting on blood fibrin, formed large quantities of peptone, together with leucin and tyrosin, as products of its digestive action. Such experiments as I have tried bearing on this point clearly show that the proteid-dissolving power of papoid is due to a genuine ferment action, whereby soluble products are formed, which, so far as ordinary chemical reactions show, are closely akin to, or identical with, those formed in gastric and pancreatic digestion. Leucin and tyrosin are likewise formed, thus showing in another way the resemblance of this ferment to the trypsin of the pancreatic juice.

While, in a general way, the final pro-

ducts of papoid digestion are essentially the same under all ordinary circumstances, certain differences appear in the primary or side-products, coincident with changes in the reaction of the digestive fluid and in the nature of the proteid undergoing digestion. Some of these points may be briefly summarized.

In the digestion of coagulated egg-albumin with an alkaline (2 per cent. sodium bicarbonate) solution of papoid, even when the digestion has been long continued (say 18 hours) at a favorable temperature, and the ferment solution strong, there invariably remains a fairly large undissolved residue. At first glance this might be considered as a residue of unaltered coagulated albumin. On being tested, however, it is found soluble, in great part at least, in warm 0.2 per cent. hydrochloric acid, from which solution it is precipitated by addition of 0.5 per cent. sodium bicarbonate, and redissolved by an excess of the alkaline fluid. This residue is, likewise, directly soluble in warm 0.5 per cent. sodium carbonate, and is precipitated by neutralization. These two reactions clearly indicate that the above residue cannot be composed of unaltered coagulated albumin, since this substance is wholly insoluble in dilute acid and alkali. The only plausible inference, therefore, is that the so-called insoluble residue in this case is composed of an albumose-like body, insoluble in 2.0 per cent. sodium bicarbonate; a possibly primary or side-product of the papoid digestion of coagulated egg-albumin. It is evidently a somewhat unique body, differing from heteroalbumose, and from ordinary globulin, by being soluble in salt solution. Aside from this peculiar insoluble body, the other products of digestion isolated were deuteroalbumose, a fairly large amount of peptone and some leucin and tyrosin.

In the digestion of raw-blood fibrin with a neutral solution of papoid, a somewhat different condition of things was observed. The undissolved residue contained, perhaps, a small amount of the body so characteristic of the digestion of coagulated egg-albumin but certainly not a large amount. The clear filtered digestive fluid, however, gave evidence of the presence of a peculiar body which was wholly wanting in the digestion of the coagulated albumin. Thus, the addition of water to the clear neutral fluid gave a heavy white precipitate of what was later proved to be an albumose-like body, readily soluble in a little 10 per cent. salt solution. Addition of 0.2 per cent. hydrochloric acid, likewise, produced a heavy white precipitate of the same body, easily soluble in a slight excess of acid. Boiling the neutral solution also gave rise to a heavy precipitate or coagulum, apparently the same body as that precipitated by water and by dilute acid, slowly but completely soluble in warm 0.2 per cent. hydrochloric acid and in warm 0.5 per cent. sodium carbonate solution. Hence, this body is a soluble albumose and not a coagulable globulin. It is completely precipitated from a neutral solution by heat, and partakes of the general character of heteroalbumose, being insoluble in water but completely soluble in salt solutions, as well as in dilute acid and alkali. In addition to this peculiar primary body, there was also found a large amount of more soluble primary and secondary albumoses, together with true peptone, leucin and tyrosin.

In the digestion of cooked beef proteids with a neutral solution of papoid, as likewise with an alkaline solution of the ferment, the peculiar heteroalbumose-like body above described was wholly absent; only the ordinary primary and secondary albumoses were observed, together with a large amount of peptone and some leucin and tyrosin.

From the above results, it is plainly evident that the power possessed by papoid of dissolving various forms of proteid matter is dependent upon an ordinary digestive action akin to, or identical with, that of digestive ferments in general, whether animal or vegetable.—Prof. Chittenden in *Dietetic and Hygienic Gazette.*

Mother.—My daughter is tongue-tied and I fear her entire future is ruined.

Doctor.—Don't worry, madam. There'll be dozens of widowers only to glad to marry her.

Tramp. "Say, mister, don't you want to give me somethin' to do?"

Merchant. "You! Nonsense; what can you do that would be of the least value to me?"

Tramp. "Well, I'd move on for a dime."

EPISTAXIS.

Undoubtedly plugging the nares by aid of Bellocq's cannula, says Dr. Philips, is an excellent method, but occasionally, especially in country practice, a Bellocq's cannula is not at hand, and some method easy, effectual and effected by material always within reach, must be resorted to. Such a method I have found in the following: A piece of old, soft thin cotton or silk, or oiled silk, about six inches square (a piece of an old handkerchief will answer) is taken, and, by means of a probe, metal thermometer case, or penholder, or anything handy, is pushed centre first, "umbrella fashion," into the nostril, the direction of pressure when the patient is sitting erect being backward and slightly downward. It is pushed on in this fashion until it is felt that the point of the "umbrella" is well into the cavity of the naso-pharynx. The thermometer case or probe, or whatever has been employed, is now pushed on in an upward direction and then towards the sides, so as to pull more of the "umbrella" into the naso-pharynx. The thermometer case is now withdrawn. We have now a sac lying in the nares, its closed end protruding well into the pharnyx behind, and its open end protruding at the anterior opening of the nares. If it be thought necessary, and is convenient, the inside of the sac may be brushed with some household astringent, such as alum solution, turpentine, etc. A considerable quantity of cotton-wool is now, by means of the thermometer case, pushed well back to the bottom of the sac. Then the thermometer case being held firmly against the packed wool, the mouth of the sac is pulled upon, and thus its bottom with the wool packed in it is pulled forward, and forms a firm, hard plug wedged in into the posterior nares. We may now pack the sac full of cotton-wool, dry or soaked in some astringent solution. The mouth of the sac may now be closed by tying it just outside the nostril with a piece of strong thread; it is then trimmed with scissors and the ends of the thread secured outside.

The above method is easier than any I know when both nostrils have to be plugged. It might be suggested to oil the cotton or silk in order to render its introduction easy and to prevent it adhering to the mucous membrane, and to render it easy of removal; but I have never found any difficulty without the oil, as the blood renders the material wet and easy of introduction, while the oil does not facilitate removal, and may modify the effect of the astringents that may be used. The plug may remain *in situ* as long as any other nose plug. In removing the plug open the mouth of the sac, and with small dressing forceps remove the cotton-wool bit by bit; if there is bleeding, simply syringe the sac with weak carbolic lotion or Condy's fluid and repack with clean cotton-wool, or wool impregnated with some antiseptic. If there is no bleeding when the wool is picked out, gently pull out the sac; or if it be adhering to the mucous membrane, syringe in a little warm water, and it may then easily be removed. This method has many advantages. (*a.*) It is easy, quickly accomplished, and effectual, and the materials are to be found in every house, and indeed, about everybody's person (I have plugged in this manner, simply using a handkerchief, one part of which was used for the sac, and the other torn into narrow strips in place of the cotton-wool). (*b.*) No damage is done to the floor of the nose or back of the soft plate by strings, etc.; (*c.*) no disagreeable hawking, coughing or vomiting takes place while the plug is introduced; (*d.*) there are no dissagreeable strings left hanging down the throat, causing coughing or sickness while the plug is in; (*e.*) the plug can be removed gently without any force, so that no damage is done to the mucous membrane and no return of hemorrhage caused. I employed this method frequently when in country practice, and do so now in bleeding after operation on the nares, and have always found it to be satisfactory. As the method has been of great use to me, and as I am not aware that anyone has spoken of it before, I take the opportunity of mentioning it, in the hope that it may be of some use to some brother practitioner when confronted by an urgent case of epistaxis, and other means of plugging are not at hand.

CURRENT LITERATURE REVIEWED.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

For May, contains a paper by Dr. Willian B. Coley, on

The Treatment of Malignant Tumors by Repeated Inoculations of Erysipelas.

In his paper the author presents the report of ten cases treated by him and in addition he has collected and tabulated all the reported cases of carcinoma and sarcoma in which erysipelas, either spontaneous or artificial, intervened. His conclusions are based upon a careful study of these cases as well as the practical experience derived from his own observations. The close resemblance of cancer to other diseases known to be of bacterial origin is discussed and the work of Sir John Simon in pointing out this analogy is referred to. The author considers that hereditary influence only supplies the *predisposing conditions* in cancer as in tuberculosis. "There is," he says, "a growing tendency to no longer adhere to the stereotyped classification of 'tumors,' and we venture to perdict that in the near future, instead of 'tumors,' a class at present embracing elements without the remotest analogy either in their etiology or mode of development, we shall have two main groups—the first of which might be designated as *congenital hypertrophies*; the second, *neoplasms*, etiologically dependent upon infection from without." The analogous diseases in animals and plants also receive due attention from the author and he refers to the fact that the "galls" on trees have been proved to be of parasitic origin and that "coccidial infection" in animals presents an analogy so striking that many observers have considered it identical with cancer. He offers the following explanation of the influence of erysipelas on malignant tumors: "If a small quantity of blood serum of an animal rendered immune to tetanus is capable of destroying or rendering inert the virulent bacilli in a fresh case, it is quite easy to understand that the toxic products of the erysipelas streptococci might bring about such changes in the blood-serum as to destroy the parasite of cancer. The parasite having been destroyed, the irritation would consequently cease, and this would lessen the hyperæmia on the parts, upon which factor the life of the tumor-cells of low vitality depends." So far as the author is aware, his cases are the only ones that have been treated by repeated injections of the pure fluid culture of erysipelas. The doses employed have varied with the age and virulence of the culture but he has aimed to obtain a good reaction, a temperature of 104° or 104½° frequently following. The effect upon the tumors was more marked in the cases of sarcoma than carcinoma, but all cases showed a cessation of growth and a more or less marked diminution in size. The results from an attack of true erysipelas have been far more brilliant and permanent. In view of these results the author thinks it may be considered proven that a portion if not all, of the benign influence rests in the toxic products of the erysipelas germ rather than in the germ itself. The dangers associated with erysipelas also receive due consideration and the author presents the following conclusions:

1. The curative effect of the erysipelas upon malignant tumors is an established fact.
2. The action upon sarcoma is more powerful than upon carcinoma, in about the ratio of 3 to 1.
3. The treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and not attended with great risk.
4. The curative action is systemic, and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas.
5. This method should *not be employed indiscriminately* until further experiments have proved its limitations.

In a foot note added since the above article went to press the author reports a fatal case of erysipelas following inoculation—a large inoperable sarcoma of the neck.

Dr. Egbert H. Grankin presents

A Clinical Contribution to the Subject of Symphysiotomy.

The author sounds a note of warning lest the profession be carried away by the "symphysiotomy wave" which is sweeping over the country and which may be followed by the same abuses as the "abdominal section wave" of a few years ago. The author holds that "at present it may fairly be claimed that symphysiotomy should not have a mortality rate, where it is resorted to on a patient not exhausted by protracted labor, or by ineffectual attempts at delivery by other means and on a patient not septic. Other things being equal, further, the child should be saved. Injury to the bladder and urethra is avoidable. Hemorrhage is only likely to occur where an improper incision has been made, and if it do occur it may be controlled. Sepsis here, as elsewhere in surgery, means faulty technique. His experience leads him to favor a primary incision extending upward from the pubic eminence. He regards the downward incision, to one side or the other of the clitoris, as faulty and unnecessary. He also believes it is better to avoid where possible the cutting of the insertion of the recti. The finger should be inserted between the recti, and when hooked under the symphysis, should remain there in order to guard the bladder and urethra from injury. The incision through the symphysis should be made from above downward, and from without inward. The subpubic ligament should be severed by cutting down on the finger. In the average case a stout bistoury will suffice for the operation. The subpubic ligament must be severed in order to secure the separation at the symphysis

which leads to increase in the pelvic diameters. When bringing the bones in apposition, after delivery, especial care must be taken to depress thoroughly the uretha and vesical neck else these will be nipped and a vesico-abdominal fistula result. The author reports the following cases:

CASE I. 19 years old; primipara at term. Forceps were applied ineffectually. Version was contraindicated. The pelvic measurements were:

Spines	8¾ inches.
Crests	9¾ "
Antero-posterior, about	7 "
Conjugata vera (under chloroform)	3¼ "

The diameters of the fœtal head were:

Bi-temporal	3 inches.
Bi-parietal	3½ "
Sub-occipito-bregmatic	3¾ "
Occipito-frontal	4⅜ "
Occipito-mental	5 "
Circumference	13¾ "
Weight of child (a female)	7.1 lbs.

Two days after delivery a deep and extensive sub-mammary abscess was opened. On the seventh day a mural abscess broke through the line of incision; on the tenth day a vesico-abdominal fistula appeared; and later a catarrhal laryngitis and a double crural phlebitis. The fistula closed spontaneously; the patient was first out of bed on the fifteenth day, and walked for the first time on the thirty-fifth day. There exists close union at the symphysis, and no mobility.

This woman could only have been delivered otherwise of a living child by the Cæsarean section and symphysiotomy was elected in order to avoid stillbirth and embryotomy of the living child. The child might have been dragged through by forceps, but dead and at the expense of the maternal soft parts.

CASE II. 23 years old; primipara. Efforts at inducing premature labor had been made without success. The pelvic measurements were:

Spines	9½ inches
Crests	9¾ "
Antero-posteior	6¾ "
Conjugata vera (under chloroform)	3 "

The measurements of the fœtal head were as follows (the child being premature by about four weeks):

Bi-temporal	2⅝ inches
Bi-parietal	3⅜ "
Occipito-mental	4⅞ "
Occipito-frontal	4⅝ "
Sub-occipito-bregmatic	3⅜ "
Circumference	13 "
Male child, weighing	5.1 lbs.

The convalescence of the patient was uneventful. The author concludes that under the new order of things he is obliged for the present to look upon symphysiotomy as an operation bidding fair to displace the Cæsarean section under the relative indication.

Dr. Roswell Park discusses the subject of

Pseudarthrosis

(Including all varieties of delayed and non-union).

I. Simple delayed union; which may be caused by shock, old age, rhachitis, gestation, lactation, scrobutus, syphilis, cancer, paralysis, local unrest.

II. Complete separation; detachment of fragments; non-union. May be due to the above causes, faulty fixation, interposition of soft parts. The bone ends may be variously altered.

III. Fibrous union. With or without much deformity.

IV. Osteophytic pseudarthrosis. May be connected with tuberculosis, syphilis, cancer, hydatid cysts, etc.

V. Fibro-synovial—true new joint.

The surgical treatment of the condition is carefully considered under the following heads:

1. Stimulation without penetration of the bone. 2. Stimulation and irritation of the seat of fracture by something introduced from without. 3. Exposure of the parts and mechanical fixation. In the paper thirteen cases are reported illustrative of the subject.

Dr. Edward Blake contributes a paper entitled "Neuroses and Arthropathies: are they related?" in which he seeks to establish the following: 1. That there is a relation between chorea and chrondritis. 2. That the nexus which unites them is a common causation. 3. That the relationship is not confined to chorea and chondrosis, but that it exists with regard to the neuropsychoses and all the arthropathies generally.

Alexander McPhedran, M. B., and John Caven, M. D., L. R. C. P. Lond., contribute the report of a case of "Diffuse Tubercular Hepatitis with Tubercular Pericarditis." Dr. Harry Friedenwald discusses the subject of "Cranial Deformity and Optic-nerve Atrophy," presenting a tabulated report of cases from various observers. George Heaton, M. A., M. B. Oxon., F. R. C. S. reports "A Case of Cerebral Abscess following the operation of Trephining for Compound Depressed Fracture of the Skull; Drainage of the Abscess; Recovery." Dr. John B. Roberts contributes a paper on the "Cure of Complete Prolapse of the Rectum by Posterior Proctectomy." Dr. W. Page McIntosh reports a "Laparotomy and Removal of Cystic Tumor (cystoadenoma) of the Peritoneum; Formation of Artificial Anus; Subsequent Laparotomy and Resection of the Colon; Closure of the Artificial Anus, Recovery."

THE MEDICAL CHRONICLE

Of Manchester, England, for April, contains an exhaustive paper by Dr. Graham Steell on "Heart Failure as a Result of Chronic Alcoholism." The paper is a thorough discussion of the subject into which the author enters minutely, illustrating the various points by tracings from the shygmograph. Dr. Patrick Hehir contributes an article on "The Hyderabad Chloroform Commissions" in

which the work done and the results published by the commission are reviewed. The author was the president of the second commission. The article contains nothing additional to the published findings of the commission. In the department of "Clinic," Dr. Thomas Harris reports a "Tumor (angiolithic sarcoma) of the Dura Mater compressing the Motor Area of the Cortex of the Right Cerebral Hemisphere." Clinically, one of the most interesting features was the complete absence of any convulsions, unilateral or otherwise, until the slight convulsive attack which immediately preceded death. Another point of special interest in reference to cerebral surgery is the fact that although at the post-mortem examination the tumor was so large, and had compressed and displaced so much brain substance, that complete recovery of power over the left arm and leg could not have been hoped for; yet, had the growth been submitted during life to surgical interference, it could have been removed. It was sharply circumscribed, could have been shelled out, and the surrounding brain substance was neither infiltrated with growth nor softened, as is so frequently seen around cerebral tumors.

Pathologically the growth is of interest from the microscopical structure, especially on account of the hyaline changes which the blood vessels showed, and the subsequent deposition in the tissue, which obliterated the vessels of crystalline salts. The growth appears to correspond somewhat closely to what Cornil and Ranvier describe as an angiolithic sarcoma.

Dr. Judson S. Bury reports "A Case of Cortical Tumor involving mainly the First Left Frontal Convolution." The alleged cause of the symptoms was a blow on the head.

Both these reports are illustrated by woodcuts showing the location and relations of the tumors reported.

THE AMERICAN JOURNAL OF OPHTHALMOLOGY.

Especially well timed and important is a paper in the March number by Dr. Ayres on the

Conservative Treatment of Strabismus Convergens.

After briefly reviewing the history of tenotomy of the internal rectus as proposed by Stromeyer in 1838 and first successfully executed by Dieffenbach in 1839, Dr. Ayres refers to Donders and his great work on the "Anomalies of Refraction and Accommodation of the Eye." In it Donders states that "Strabismus Convergens almost always depends upon hypermetropia, and in discussing the origin of strabismus says that it is promoted by circumstances which render convergences easier, and mentions a peculiar structure or innervation of the muscle. The former cause was better known to him than the latter, and it is possible that he attributed too much to it, as the latest investigations tend to show that the innervation of the muscles is a very important factor." In support of this statement the author quotes Noyes, Stellwag, Grut and others. He next discusses the treatment of a case of "Convergent Strabismus beginning in early life from the second to the fifth year" by correction of the ametropia. He concludes thus: "In my judgment, except in very high degrees of squint, it is better for the child to wear the correcting lenses for a period of from one to four years before a tenotomy is made. This may seem very conservative, but I think that *final* results will bear me out in this position. The primary results of many skillfully made tenotomies are very satisfactory for a period of five years or even longer. But examine these cases later on and what do you find? A moderate and even a pronounced divergence. Can we avoid this result? Stellwag speaks of persons who outgrow strabismus, and every oculist has seen them. Does this not prove that there is a want of muscular balance which has a tendency to correct itself as the child develops into manhood or womanhood? This is the factor which tends to bring about the bad results which we used to see so frequently some years ago." But after trial of proper glasses for a reasonable period and in children from ten to fifteen years there remains a quota of cases requiring operation, in speaking of which the writer says: "I feel quite safe in asserting that the profession has belittled the importance of strabismus operations. It requires much skill and judgment to do them successfully, and many important points have to be considered before determining the propriety of the operation."

A Case of Gumma of the Sclerotic

is reported by Dr. Adolf Alt. It occured in a married woman, thirty five years old, and manifested itself as a small swelling, situated near the corneal margin up and inwards. About two weeks after she was first seen she had a swelling on the pre-auricular glands and sore throat, and finally a papulous syphilide made its appearance all over her body. Mercury was given internally, but no local application which he used seemed of any value in treatment of the scleral growth until he made inspergations of calomel under which "the tumor shrank rapidly."

THE DUBLIN JOURNAL OF MEDICAL SCIENCE

First place is given in the March number to Dr. Stoker's paper.

On the Operative Treatment of Trifacial Neuralgia.

Although the points spoken of are purely surgical, they will, in view of the frequent failure of medical treatment in neuralgia, recommend themselves to physicians no less than to surgeons. The suffering produced by some forms of trifacial neuralgia are so great, the malady is so common, and generally so intractable, that any contribution to its literature will be welcome alike to physicians and surgeons.

The doctor discusses quite fully four meth-

ods of treatment—neurotomy, neurectomy, stretching, and avulsion. The following summary of the paper may thus be briefly stated:

1. That in cases of trifacial neuralgia demanding operative treatment neurotomy is not usually a satisfactory or efficient operation.

2. That in purely sensory nerves stretching is at best but a temporary expedient, and either should not be undertaken, or having once performed and followed by a return of pain, should not be repeated.

3. That the reasonable treatment in trifacial neuralgia of an extreme character is neurectomy, and that while the operation on divisions of the 5th nerve external to the cranial cavity may be regarded as an established procedure, the ultimate operation of removing the Gasserian ganglion must still be considered as on its trial.

4. That avulsion should only be practiced as a part of an open operation, and that, as originally proposed by Professor Thiersch, it should be regarded as a blindfold and unscientific proceeding, to be undertaken only when an open operation is for sufficient reasons impossible or inexpedient.

Movable Kidney

Is the subject of Dr. Kendal Frank's paper which is carefully prepared and will be found very instructive. He takes Newman's classification of displacements of the kidney as the most convenient division for study, dividing them into three classes:

1. Simple displacement, without mobility of the kidney.

2. "Movable kidney," where the organ is perceptibly mobile behind the peritoneum.

3. "Floating kidney," where the peritoneum forms a mesonephron which attaches the kidney loosely to the spine.

Four methods have been employed for fixing the kidney in the loin.

M'Cosh thus summarizes them:—

1. The sutures may be passed through the adipose capsule alone.

2. They may be passed through the fibrous capsule of the kidney itself.

3. They may be passed through the parenchyma of the kidney.

4. The fibrous capsule may be partially stripped off the kidney in order to obtain a surface of renal tissue, by means of which the adhesions, it is believed, would be firmer. The sutures are then passed through the parenchyma and capsule, just inside the border of the raw surface. This is the method recommended by Jordan Lloyd.

Of these various methods it would appear that the best results are obtained when the parenchyma of the kidney is included in the suture, or when the capsule is partially stripped off.

Of the material for suture, catgut has been practically discarded on account of its becoming absorbed before the adhesions have become sufficiently strong to retain the kidney *in situ*. Kangaroo tendon has been proved reliable in the hands of Gould and Morris. Aseptic boiled silk has been used by Keen in his cases, and "it has answered admirably."

The wound in the loin is generally healed in eight to ten days; but it is advisable to keep the patient in bed in the horizontal position for a much longer period—about six or seven weeks—so as to afford time for the adhensions to become firm.

By these means a complete cure can be obtained, and the kidney be firmly secured into its normal position.

Three other papers, "The Influence of Public Cleansing on the Mortality of Towns," by Dr. Finn; "The Treatment of Pulmonary Consumption in Special Hospitals and Dispensaries," by Dr. Denham. "Some Recent Clinical Experiences," by Dr. Moore completes this issue.

SELECTED FORMULÆ.

Tertiary Syphilis.

Dr. Jos. Jones speaks highly of the following:

℞

Hydrarg. biniod.,	gr. iv.
Kal. iodid.,	ʒj.
Tr. iodin.,	ʒj.
Syr. iodid. ferr.,	ʒj.
Aquæ,	ʒiij.

M.
Sig. One drachm in water three times a day after meals.

—*Med. Bull.*

The taste of turpentine is said to be thoroughly disguised in the following combination:

℞

Oil of turpentine	2 fl. drs.
Glycerine	1 fl. oz.
Mucilage acacia	½ fl. oz.
Peppermint water, to make	8 fl. oz.

—*Pharm. Era.*

Constitutional Syphilis.

A mixture often ordered by Dr. Keyes is thus composed

℞

Potass. iodid.,	ʒij.
Ammonii carbonatis,	ʒss.
Tr. cinchonæ comp.,	ʒiv.
Syr. aurantii cort.,	ʒjss.
Glycerinae,	ʒj.

M.
Sig. A teaspoonful, well diluted, after each meal.

—*Ther. Gazette*

Protracted Croup.

Davis.

℞

Potassium iodide	2½ drachms.
Tincture bloodroot	4 drachms.
Syrup squills compound	1½ ounces.
Camphorated tinct. opium	2 ounces.

Teaspoonful every four hours.

—*Phar. Era*

Habitual Abortion.

In habitual abortion, not due to syphilis, Negri recommends

℞ Mist. asafetida,..... ℥viij.

Sig. A tablespoonful several times daily.

—*Lancet-Clinic.*

Collodion for Gouty Joints.

℞ Morphinae acetatis..... gr. xx.
Acidi salicylici..... ʒij.
Ætheris,
Colodii flexilis,..... aa ℥vij.
Misce.

To be applied to the painful joint.

—*Ex.*

Secondary Syphilis.

In the secondary stage Ohmann-Dumesnil prescribes the following;

℞ Hydrargi bichloridi,..... gr. iv.
Ammonii muriat.,..... gr. viij.
Tinct. Cinchon. co.,..... ʒj.
Syr. sarsaparillæ co.,
Aquæ destillat.,..... aa ʒjss.

M.

Sig. Teaspoonful in water after each meal.

Uremic Vomiting.

Lecorche and Talamon use the following:

℞ Acid lactic..... mxv-xxx.
Syrup menthae pip..... ʒj.
Aquae destillat..... ʒiij.

M.

—*N. E. Med. Mo.*

Hiccough.

(In obstinate cases with extreme debibity).

℞ Hydrargyri chloridi mitis..... gr. j
Saochari lactis..... ʒss.
Misce et. fiant chartulae No..... xij.

Sig. Take one powder every hour.

—*Dr. Gerhard.*

Chancroids.

For the cure of chancroids Dr. Adinell Hewson, of Philadelphia, advises this treatment: The penis to be washed with hot water and the following lotion applied locally:

℞ Hydrarg. chloridi mitis..... 2 drachms.
Liquor calcis..... 3 ounces.
Listerine..... 1 ounce.

Mix.

A Valuable Counter-Irritant in Diseases of the Chest.

℞ Aceti cantharides..... ʒij.
Spiritum camphorae..... ad ʒi.
Misce et fiat linimentum.

Apply to the chest at bedtime until redness is produced.

—*Practitioner.*

General Nervousness and Depression of Spirits.

The following is given by Dr. Emmet:

℞ Strychniae sulph..... gr. j
Quiniae sulph..... ʒss
Ferri pyrophosphat..... ʒij.
Spiriti chloroformi..... ʒiij.
Glycerinae..... qs. ʒiv.

M. Sig. One teaspoonful in wine glass of water four times a day.

Hooping Cough.

℞ Acidi nitrici diluti..... ʒxij.
Syrupi simplicis..... ʒiii ss.
Aquae destillatae..... ʒi.

M. Sig. Take a teaspoonful every three hours.

—*Dr. Hazard.*

For Disguising the Taste of Cod-liver Oil.

℞ Oleum gaultheriae
Oleum sassafras..... aa 4 parts.
Oleum aurantii flores..... 2 parts.

S. One drop to the ounce of oil.

—*Gazetta degli Aspitali.*

Scabies and Head Lice.

Prof. Tilbury Fox uses the following lotion:

℞ Hydrargyri chloridi corrosivi. gr. iv.
Alcoholis..... ʒvi.
Ammonii chloridi..... ʒss.
Aquae Rosae, q. s. ad..... ʒvj.

M. Sig. Apply once daily

Asthma.

℞ Potassiii iodidi..... ʒiij.
Extracti belladonnae fluidi..... ʒi.
Extracti lobeliae fluidi ..... ʒij.
Extracti grindeliae fluidi..... ʒss.
Glycerinae.....
Aquae destillatae ää..... ʒjss.

M. Sig. Take a tablespoonful every two, three, or four hours, as necessary.

—*Bartholow.*

Or this:

℞ Chloral hydratis..... ʒvj.
Syrupi tolntani..... ʒi.
Aquae fœniculi q. s. ad..... ʒij

M. Sig. Dose, a teaspoonful every half hour or hour, until relieved.

—*Weir Mitchell.*

Anæmia and Chlorosis.

Prof. Goodell recommends:

℞ Tincturae ferri chloridi..... ʒij ss.
Acidi phosphorici diluti..... ʒiij ss
Syrupi acidi citratis q. s. ad..... ʒiv.

M. Sig. Take a dessertspoonful in water three times a day.

Scarlet Fever.

Dr. Wilson has employed chloral throughout the entire attack with asserted good results in the following manner: so soon as the patient is suspected or known to be developing scarlatina, a laxative dose of calomel, proportionate to the age and general condition is administered. Shortly thereafter chloral is given in moderate doses, at intervals of two or three hours, or longer, throughout the attack. The dose varies with the age of the child; the frequency of its administration depends largely upon its effect. To infants of two or three years a dose of from 1 to 2 grains may be given, the dosage being gradually increased with older children; that for adolescents reaching 5 grains. The tranquillizing and sleep-producing effects of the drug are, in most instances, promptly realized, the patient falling into a condition of quietude instead of the restlessness and jactitation which are so distressing in the well-developed disease.—*Hare's Therapeutics.*

PERISCOPE.

MEDICINE.

Tetany in Children.

Loos has written an article on tetany in children, in which he gives laryngismus stridulus as the most important symptom in the disease; the following are in conclusion:

(1) Tetany is a frequent disease of early childhood, and has well-recognized symptoms.

(2) It begins relatively seldom with spontaneous tonic contractures of the extremities.

(3) Its presence is proven by the diagnostic sign of spasm of the larynx.

(4) It is not definitely settled whether spasm of the larynx alone is sufficient to establish a diagnosis of tetany.

(5) The symptoms of the disease are explained by the unusual excitability of the peripheral nerves and muscles.

(6) The excitability is caused by different irritants.

(7) The reason for this excitability is not known.

(8) The disease is more frequent in certain months of the year (spring).

(9) Tetany has no causal relation to rachitis.

SURGERY.

The Symptoms of Hip Joint Diseases.

Dr. A. M. Phelps concludes that the important early symptoms of hip joint diseases occur in the following order:

1. Limiting of motion. 2. Deformity with apparent lengthening or real shortening. 3. Limp. 4. Atrophy (in bone disease). 5. Pain in knee (with absence of knee joint disease). 6. Pain on joint pressure. 7. Night cries in absence of other joint disease. 8. Flattening of buttock and change in gluteal fold. 9. Heat. 10. Swelling.—*New Eng. Med. Mon.*

The Nasal Douche.

Dr. L. A. Dessar says the following rules should be observed in the use of all nasal douches:

1. The handkerchief should not be used for at least ten minutes after douching, inasmuch as in blowing the nose, any fluid remaining in the nasal passages may by a Valsalve action be forced into the Eustachian tube.

2. After douching it is advisable for the patient to remain indoors, so as to avoid exposure to the cold air.

3. During the proceeding the patient should not be disturbed or excited, as this may give rise to an involuntary attack of sneezing, coughing, or swallowing, and thus render it possible for fluids to enter the middle ear.

4. Before beginning the douching a careful examination should be made to see whether both nostrils are free. If one of them is found to be obstructed the douche should be used on the affected side.

5. Plain water should never be employed for douching, as it loosens the nasal epithelium. The addition of a small amount of sodium chloride prevents this action.

6. Concentrated solutions should never be used as a douche.

7. It is not advisabled to douche the nose more than three times daily. As a rule, its application morning and evening is sufficient.

8. The quantity of fluid introduced should not exceed ten ounces, the average amount varying from five to ten ounces; *i. e.*, from one to two douche cupfuls for each nostril.

9. The fluid should always be luke-warm.—*Inter. Jour. Surg.*

A Statistical Study of the Mortality from Anæsthetics.

Gurlt has continued for another year his collection of statistics for the purpose of studying the relative danger in the use of chloroform, ether, and other anæsthetics, and reported at the last meeting of the German Society of Surgeons on a material of 109,230 cases. There were 94,123 cases of anæsthesia by chloroform, 8,431 by ether, 2,891 by a mixture containing both, and a few with other drugs. With chloroform there was one death in every 2,614 cases, and with ether one in 7,431, while there was also one death in the few with the mixture.—*Centra fur chir.*

NEWS AND MISCELLANY.

The American Association of Obstetricians and Gynecologists will hold its sixth annual meeting at the Russell House, Detroit, Mich., on Thursday, Friday and Saturday, June 1st, 2nd and 3rd, 1893, under the presidency of Dr. Lewis S. McMurtry, of Louisville.

The following is the preliminary programme as far as titles are announced:

1. The President's Address, "The Present Position of Pelvic Surgery," by Dr. L. S. McMurtry, Louisville.
2. "Abdominal Fixation," by Dr. Florian Krug, New York.
3. "Endoscopic Tubes for Direct Examination of the Interior of the Uterus and Bladder," by Dr. Robert T. Morris, New York.
4. "Placenta Previa," by Dr. William H. Wenning, Cincinnati.
5. "What are the Indications for Abdominal Section in Intra-Pelvic Hemorrhage?" by Dr. M. Rosenwasser, Cleveland.
6. "Treatment of Metritis," by Dr. E. Pietranera, Cordova, A. R.
7. "A Plea for better Surgery in the Closure of the Abdominal Incision," by Dr. H. W. Longyear, Detroit.

8. "Remarks on the Treatment after Abdominal Sections," by Dr. C. C. Frederick, Buffalo.
9. "The Management of the Abdominal Incision," by Dr. Charles A. L. Reed, Cincinnati.
10. "Dilatation of the Cervix for Dysmenorrhea," by Dr. E. M. Pond, Rutland.
11. "Intra-Uterine Pregnancy; With Report of Cases," by Dr. George S. Peck, Youngstown.
12. "A Contribution to the Study of Ectopic Gestation," by Dr. E. Arnold Praeger, Nanaimo.
13. "A Few Practical Notes on the Establishment of Anastomosis between the Gall-Bladder and Intestine for Obstruction of the Common Duct with the Relation of a Case of Obstruction of the Common Duct by Small growth," by Dr. James F. W. Ross, Toronto.
14. "Vaginal Hysterectomy for Malignant Disease," by Dr. Rufus B. Hall, Cincinnati.
15. "The Care of Pregnant Women," by Dr. John Milton Duff, Pittsburg.
16. "A Contribution to the Pathology of Surgical Disease of the Gall-Bladder," by Dr. Walter P. Manton, Detroit.
17. "The Legal Questions in Gynecological Operations on the Insane,' by Dr. Walter P. Manton, Detroit.
18. "Pelvic Abscess," by Dr. I. S. Stone, Washington.
19. "Central Rupture of the Perineum; Its Causation and Prevention," by Dr. John C. Sexton, Rushville.
20. "A Case of Myomectomy with Extra-Peritoneal Treatment of the Pedicle, followed by Pregnancy and Complicated by Hemorrhages through the Abdominal Cicatrix," by Dr. X. O. Werder, Pittsburg.
21. "Anatomy and Surgical Importance of the Peri-Renal Cellulo-Adipose Tissue," by Dr. L. H. Dunning, Indianopolis.
22. "Report of Cases from Practice with Remarks on the Same'" by Dr. A. Vander Veer, Albany.
23. "Further Observation on the Relation of Pelvic Disease and Psychical Disturbances in Women," by Dr. George H. Rohe, Catonsville.

A cordial invitation is extended to the members of the medical profession interested in the work of the Association to attend its several sessions.

By order of the Executive Council.

WILLIAM WARREN POTTER, Secretary.

ARMY AND NAVY.

U. S. ARMY, FROM APRIL 16, 1893, TO APRIL 22, 1893.

Major Henry M. Cronkhite, Surgeon U. S. Army, will proceed to Fort Wadsworth, N. Y. H. and report to the post commander for temporary duty.

U. S. ARMY, FROM APRIL 23, 1893, TO APRIL 29, 1893.

The leave of absence granted Lieutenant Colonel Charles C. Byrne, Deputy Surgeon General, U. S. Army, is hereby extended one month.

Captain Wm. O. Owen, Jr., assistant surgeon, is relieved from duty at Jefferson Barracks, Mo. and ordered to Fort Bayard, N.M. for duty.

Captain Edward T. Comegys, assistant surgeon, is relieved from duty at Fort Bayard, N.M., and ordered to Fort Wadsworth, N.Y. for duty.

Captain A. S. Polhemus, assistant surgeon, is relieved from duty at Fort Monroe, Va. and ordered to report at Fort Douglas, Utah, for duty.

Captain Wm. P. Kendall, assistant surgeon, is relieved from duty at Fort Douglas, Utah, and ordered to Willet's Point, N. Y. for duty.

Captain Wm. F. Carter, assistant surgeon, is relieved from duty at Willets Point, N. Y. and ordered to Fort Sill, O. Ty. for duty.

Captain B. D. Taylor, assistant surgeon, is relieved from duty at Fort Sill, O. Ty. and ordered to Fort Bliss, Texas.

Captain Wm. B. Banister, assistant surgeon, is relieved from duty at Washington Barracks, D. C. and ordered to Fort McIntosh, Texas, for duty.

Captain George McCreery, assistant surgeon, is relieved from duty and ordered to Fort Sidney, Nebraska, for duty.

Captain Louis S. Tesson, assistant surgeon, is relieved from duty at Fort Sidney, Nebraska and ordered to Jefferson Barracks, Mo. for duty.

Leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department to take effect when Assistant Surgeon Ware shall have returned to Fort Supply, I. T. is granted Captain Marlborough C. Wyeth, Assistant Surgeon, U. S. A.

Leave of absence for twenty days, to take effect after May 1st, 1893, is hereby granted to Major Ezra Woodruff, Surgeon U. S. Army.

First Lieut. Ogden Rafferty, Assistant Surgeon, to be Assistant Surgeon, with the rank of Captain, from March 26, 1893, after five years' service, in conformity with the act of June 23, 1874.

First Lieut. Francis A. Winter, Assistant Surgeon, U. S. Army, is relieved from duty at Fort Wingate, N. M. and will report in person to the senior commissioner of the International Boundary Survey Commission at Yuma, A. T. for duty, relieving First Lieut. Harlan E. McVay, Asst. Surgeon.

First Lieut. McVay on being relieved by First Lieut. Winter, will report in person to the commanding officer San Carlos, A. T. for duty at that station relieving Captain Paul Shillock, Assistant Surgeon.

Captain Shillock, on being relieved, by First Lieut. McVay, will report in person to the commanding officer, Fort Wingate, N. M. for duty at that post.

MAY 13TH, 1893.

THE MEDICAL AND SURGICAL REPORTER

MONOGRAPH SERIES. No. 2.

THE ETIOLOGY OF PROSTATIC HYPERTROPHY.*

G. FRANK LYDSTON, M. D.†

Few pathological conditions indeed have been the subject of a greater variance of opinion as to the etiology, than has enlargement of the prostate. The opinions of authorities have varied from the agnostic assertion that in the present state of our knowledge we are unable to determine positively the cause of the condition, to opinions as dogmatic as could be imagined. It is a noteworthy fact that most of the modern theories are fully as open to criticism as some of the more ancient views. Thus there is much of logic in the opinion of Home,[1] who, some seventy-five years ago, promulgated the theory that the principal cause of prostatic disease was a slow return of blood from the neck of the bladder, arising from the disadvantageous situation of the veins as regards their relation to the heart which favors habitual congestion of these vessels. He held the opinion that this tendency to congestion was enhanced by high living, or any other circumstances which increased the circulation of the blood in this region. Home believed that traumatism, such as is incidental to horseback riding, sometimes produced in the deeper parts of the prostate a rupture of the blood vessels which was subsequently followed by hypertrophy. This rupture of vessels he believed to be in some measure analogous to apoplexy. He also assigned to old age a prominent role in the production of hypertrophy of the prostate.

Wilson,[2] in 1881, endorsed the opinion of Home so far as the tendency to the disease on the part of high livers was concerned. He seemed to think that strict celibacy on the one hand, and venereal excess on the other, were alike potent in the production of the disease, although he admitted that exceptional cases occurred in which enlargement of the prostate developed in people who lived abstemious and temperate lives.

Sir Charles Bell asserted the existence of a predisposition to prostatic enlargement, but did not state what constituted or caused this predisposition. Admitting that such predisposition existed, he believed that the exciting causes were associated with irritation of the bladder with resulting frequent contractions of that viscus. As a consequence of these contractions of the bladder, he believed that the urethral muscles were the seat of over-action, the result of which was to draw the so-called median lobe backward in such a manner as to elevate it and constitute an obstruction to the escape of urine.

Samuel Cooper[3] frankly confessed that the causes of prostatic hypertrophy were unknown. He seemed to think from his experience, however, that people who led sedentary lives were more liable to the affection than others.

Astley Cooper[4] arbitrarily stated that hypertrophy of the prostate was the consequence of age alone, and not of disease.

Brodie[5] seemed to think that enlarged prostate was a matter of course in old men. He believed that prostatic hypertrophy never becomes manifest until plainly

*Read before the Detroit Medical Library Association, December 9th, 1892.

†Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons.

marked evidences of senility developed.

The late Dr. Gross[6] expressed himself to the effect that prostatic hypertrophy might result from habitual engorgement of the organ incidental to protracted and repeated sexual intercourse; irritation from a vesical calculus; the free use of stimulating diuretics and alcoholic or malt liquors; exposure to cold; the suppression of cutaneous diseases; gout and rheumatism; traumatism; the frequent introduction of the catheter, and habitual straining at stool, as in chronic diarrhœa and other affections of the bowels.

Mercier[10] classed as predisposing causes all conditions and influences which favored sluggishness of the circulation. According to him, men of lymphatic habit with plenty of cellular and adipose tissue, have generally a lax and unresisting venous system. Such subjects, he claimed, are most frequently the victims of prostatic enlargement. He considered that sedentary habits favored the disease.

Amussat[8] stated that syphilis, a foreign body in the bladder, or stricture of the urethra were the most common causes of prostatic enlargement. It it observed, he claimed, chiefly in elderly persons who have for a long time used sounds or bougies upon themselves.

Desault[7] claimed that enlarged prostate was very common in elderly men, and in those who have had numerous attacks of gonorrhœa. He also believed that the disease might bear a causal relation to scrofula and other cachexiæ.

Civiale,[9] in discussing the etiology of prostatic hypertrophy, placed first in the order of prominence vesical calculus. Second only to vesical calculus, he considered organic strictures of the urethra. He denied the relation of venereal excesses to chronic prostatic disease.

Coulson[11] contents himself with the presentation of the views of others and has no opinion of his own.

Thompson expresses himself in the most unequivocal fashion as believing that prostatic hypertrophy is seen in young patients; the organ in such cases becoming enlarged by interstitial plastic effusion, the result of inflammatory action, while in old age there is unnatural development of the prostatic tissue proper, i. e., it is true hypertrophy. According to him, the action of inflammation and its products does not favor growth, but it is directly antagonistic to such a process. A prostate, therefore, which has been enlarged by inflammatory effusion is according to Thompson, probably less likely subsequently to exhibit an hypertrophic tendency. Nutrition is thus impeded, not encouraged. In brief, Thompson feels warranted in excluding inflammation from the list of causes. Urethral stricture and calculus are not considered by him to be of great importance in the etiology of prostatic hypertrophy. He does not believe that habitual engorgement of the prostatic and hemorrhoidal plexuses has much to do with the etiology of the disease. True hypertrophy, according to him, in any situation never has venous congestion for a cause; venous congestion impairs structure and predisposes to ulceration of the tissues affected by it, but it never augments vital force or stimulates growth. Upon this ground Thompson denies congestion as a possible cause of hypertrophy of the prostrate. He further disputes the possibility of rheumatism, gout or syphilis playing any part in the pathological process. Regarding the effect of sexual excesses, he says: "Much influence has been attributed to the effect of habitual indulgence of this kind; but from the fact that the affection has been observed to occur in individuals known to have been remarkable for chastity, the opposite extreme of continence has been regarded also as exercising a similar influence. In regard to the first, it appears reasonable to believe that repeated use might induce hypertrophy here as elsewhere; while, without entering upon the question of prostatic function, it is impossible not to asscciate the organ with the sexual act, and admitting this it appears not to be easy to escape the inference that hypertrophy is likely to result from sexual excess; yet facts do not favor this view. Hypertrophy does not exist when the function is in greatest vigor and is not called into immediate existence by the most licentious excesses indulged in during the prime of life, and in must be admitted that in any part of the body hypertrophy develops itself

coincident with, or, at all events, immediately follows the increased action which induces it."

Although Thompson disputes the view that the prostate is truly a secreting gland, he admits it for the sake of argument, and claims that no other gland offers a pathological parallelism with hypertrophy with the prostate; all of its component tissues are not increased in their relative proportions. An enlargement of the gland may be due to an increase of glandular elements; or, on the other hand, to a change in the structure and an increase in the bulk of the prostatic tissues proper. Thompson does not believe, furthermore, that an enlargement of the prostate is a simple muscular hypertrophy induced by increased action. He calls attention to the close similarity between the uterus and the prostate and seems to think that just as during the latter part of the period of reproductive activity the uterus is prone to develop new growths identical in structure with its own, a similary tendency will be found to develop new gowths in the prostate at a corresponding period in the life of the male. Thompson's tables apparently support the view which he promulgates by showing that hypertrophy of the prostate is a disease incidental to old age, but he fails to make clear the precise connection between advancing age and the development of prostatic hypertrophy. Even granting that old age is the chief factor in the production of the disease, there is yet much to be accounted for. Why should so large a proportion of elderly men present a condition so distinctively pathological affecting an organ which in old age at least should be practically of no importance from a physiological or functional standpoint? Thompson himself admits that hypertrophy of the prostate is not necessarily, or even usually, present in old age, but is rather an exceptional condition. According to him, a slight tendency to hypertrophy of the prostate undetermined during life may exist in about one in three individuals after 60 years, and that a marked enlargement may be met with in any one out of seven or eight after that age.

The modern French school, following that celebrated authority upon genito-urinary diseases, M. Guyon, entertains the peculiar view that enlargement of the prostate is not a local condition and the effect of local causes, believing that all the urinary organs, and particularly the bladder, undergo changes of analogous character, the origin of which should be looked for in structures bearing absolutely no anatomical relation to the urinary system; implying, in short, that enlargement of the prostate is dependent upon general atheroma. Thus this school claims that the walls of the bladder fail in their power with a resulting accumulation of residual urine followed by cystitis, *prior* to the enlargement of the prostate. Reginald Harrison has asserted that the habit of partial retention frequently precedes the vesical signs of prostatic enlargement, the depression of the posterior wall of the bladder being a primary change. The depression of the posterior wall of the bladder results in a compensatory hypertrophy which determines the development of a strong muscular band or buttress at the base of the trigone, and finally enlargement of the prostate itself.

It is obvious that even though we admit that in certain cases, depression of the floor of the bladder and alteration in the walls of that viscus precede perceptible pathological change in the prostate, I contend that such cases are no argument against what appears to me to be the correct view, that pouching of the bladder is generally a secondary condition. General atheroma, for example, with a resulting alteration of the structure and power of the bladder might occur and subsequently become associated with enlargement of the prostate, which enlargement is due to the same causes as in other cases in which prostatic hypertrophy is unassociated—primarily at least—with disease of the bladder.

Taking for our point of departure the modern and rational view that all pathology is but perverted physiology, it becomes our duty to inquire into the structure and function of the prostate in our endeavor to determine the chief factors in the production of that peculiar enlargement known as prostatic hypertrophy.

The older nomenclature of the prostate, which implied the glandular structure and function of the organ, has been assailed by modern authorities upon genito-urinary disease, and there has been considerable argument upon the question as to whether it functionates purely as a muscle or its muscular action is secondary, or better, auxiliary to its glandular function. The most interesting and logical description of the prostate extant, is found in the recently published lectures of Mansell Moullin[1]. This author begins a discussion of the subject with the assertion that "the prostate neither acts as a sphincter, nor as a muscular buttress.

"It does not assist in the propulsion of urine, nor does it delay its exit from the bladder. It is purely and simply a sexual structure developed around the first portion of the urethra in connection with the sexual organs and with a well-defined sexual function. The first portion of the urethra, which is surrounded by the prostate, belongs anatomically to the bladder, which is not only continuous with it, but is developed from the same structure, the allantois. They are absolutely distinct from the rest of the genito-urinary passages. In the monotremata the penile and prostatic portions of the urethra never become organically joined, the penile portion of the urethra serving as a sexual organ only and having nothing to do with the urinary function. In man a somewhat similar condition is seen in so-called hermaphrodism where the urethra opens in the perineum, and if a transverse section of the prostate be made just below the vesical neck in an infant, the relation of the prostate to the urethra cannot be mistaken. The urethra lies in the center or a little in front of the prostate, with a few longitudinal bundles of non-striated muscular fibre around it. External to these fibres there is a very thin layer of circular fibres, some of which appear to be muscular. This is probably part of the circular coat of the bladder. "The prostate itself forms two great masses, one on each side, composed almost entirely of ducts with an indication of acini at their ends, converging toward the central canal. In front, they are connected together by interlacing fibres with large nuclei spreading from the great transverse mass of stroma that stretches across the urethra. The prostate, in short, surrounds the urethra, supporting it, but forming no part of it. The canal runs down through the middle and the gland is simply grouped around it.

"The sexual character of the glandular part of the prostate is not to be seriously questioned; it can have nothing to do with micturition. The glands do not attain their full growth until the time of sexual maturity. In castrated animals they waste and disappear and, like the other sexual organs, in many animals, their size and perfection of structure rise and fall according to the breeding season. The stroma of the gland, the fibrous and muscular tissue surrounding the first part of the urethra, is held by many to be the real seat of hypertrophy in old age. Whatever may be its pathological conditions, the stroma of the gland is purely sexual and has nothing to do with micturition as long as the structure is normal at least. That it is unnecessary to the urinary function, is shown by the fact that women and children get along very well without it." As Moullin very properly states, this description of the structure and function of the prostate holds good only so long as the organ is in a normal condition. Any alteration in shape, size or consistence distinctly modifies its relation to both the urinary and sexual functions.

From what has been said it should, it seems to me, be plain that the prostate is practically a gland, the function of which is of a purely sexual character. The glandular elements are held together by a certain amount of connective tissue stroma, reinforced and protected by an amount of muscular and fibrous tissue, varying according to the degree with which the gland departs from its normal condition. Either inhibition or exaggeration of function is likely to result in a change in the stroma of the gland.

It must be admitted that in seeking for the etiological factors of the peculiar pathological changes to which the prostate is subject, we must take the structure and function of the normal prostate as our point of departure. It is imperatively necessary in the consideration of those

pathological processes of a chronic character in which there is no traumatic or infectious element to explain their etiology. If the function is a sexual one, it is here that we must look for the cause. If the function of the prostate body be essentially that of a gland, it is to its function as a gland that we must refer in explaining its pathology. If the function of the prostate is that of a muscle, we must consider perturbations of its muscular action in studying the etiology of prostatic enlargement.

I have never been able to understand by what process of reasoning enlargement of the prostate has been attributed to the age of the patient *per se;* particularly does this theory seem far-fetched if we consider the prostate as a sexual gland, the activity of which should decrease with advancing age, with a resulting atrophy—if indeed any change at all should occur—rather than an hypertrophy. As Moullin shows, both by logical argument and by actual demonstration, "the enlargement of the prostate is, at its commencement at least, essentially a diffuse glandular growth, spreading chiefly in the mucous and submucous tissues and later becoming considerably modified by secondary changes; failure in expulsive power of the bladder being in almost every instance the direct consequence of it. Age alone, though it may not be without influence, certainly cannot be the cause for two reasons, either of which is sufficient. In the first place, prostatic overgrowth is not met with in anything like the majority of old men, and its degree bears no relation to the age they reach; and, in the second place, it may occur, and does so with very much greater frequency than is usually believed, in those who certainly do not deserve to be called old, whether the number of years or the condition of sexual power, is taken as the standard. The time of life at which it makes its first appearance must not be confounded with the age at which the presence of residual urine is ascertained. The growth may have been present for years before giving rise to this particular result, and the absence of any enlargement when the gland is explored only per rectum is not of the slightest value as regards its extension in other directions. If vertical antero-posterior sections are made through the neck of the bladder and the urethra after hardening the part with as little disturbance as possible—and this is the only fair test for the vesical form of overgrowth for rectal measurements, the weight of the gland when dissected out, or the external dimensions, however carefully they are taken, give very little information as to the shape of the gland, and none at all regarding its consistence, it is by no means uncommon to find a considerable degree of increase in the size of the prostate long before what can be called old age, whatever the standard." Moullin then proceeds to give a number of cases ranging from twenty-seven to fifty-four years of age. The point raised by Moullin regarding the frequent occurrence of enlarged prostate at an early period of life is interesting, for it has been my experience that a large proportion of comparatively young individuals whom I have examined for various genito-urinary affections, not necessarily connected with the prostate, and who have not recently suffered from acute inflammation of the organ, present a distinct fulness of the prostate when examined per rectum. I have found this condition in masturbators and in individuals who had had at a remote period inflammatory trouble in and about the prostate and neck of the bladder. I find it very often where there are no symptoms distinctly referable to the prostate itself, and it seems to me highly improbable that all of these cases can go through life without annoyance incidental to increasing prostatic hypertrophy,—or hyperplasia, if you please,—with subsequent condensation of tissue. It has seemed to me that the relation of old age to hypertrophy of the prostate is a secondary one, the primal point of departure being really pathological conditions incidental to an abuse of the sexual function, or to acute or subacute, inflammatory or congestive processes of the organ during early life. To put the matter more succinctly: I believe that old age bears the same relation to enlarged prostate that it does to certain joint troubles that come on late in life, as a consequence of some long forgotten pathological condition or injury occurring

at an earlier period of life, and that in view of the distinctly sexual function of the prostate, an exaggeration of the secretory activity of the gland and the muscular action incidental to expulsion of semen during the earlier years of life, causes the injury which in most cases constitutes the point of departure for prostatic hypertrophy later on. An additional factor is the occurrence of gonorrhœal inflammation. While as yet my experience has not extended over the requisite number of years to enable me to present cases that have been watched for a sufficient length of time to establish this point positively, I have cases of middle aged men under my observation at the present time, whom I have seen off and on for the last ten years, who are suffering from prostatic disturbance and enlargement of greater or less degree, which has been more or less continuous during the time that they have been under my observation, and which were undoubtedly due originally to sexual excesses, gonorrhœal inflammation, or both, in combination in some instances with dietetic and alcoholic excesses.

I have under my care at the present time a physician of forty-five years of age, who has a prostate which is distinctly enlarged, a moderate amount of residual urine, and a considerable degree of cystic disturbance whose own observations and opinions of his case confirm the assertion that I have just made.

I have another case under observation of a layman, fifty years of age, who confesses to sexual excesses, and states that he has had trouble with the bladder and prostate more or less continuously since an attack of gonorrhœa, with resulting prostatitis at the age of thirty. While this case is open to impeachment on the ground of too short a period of observation on my part, at the same time the history is worth something and the fact remains that there is prostatic enlargement. I will not attempt to present a long array of cases, which appear to me to support my view of the etiology of enlargement of the prostate, but I am confident that I could present a sufficient number of cases to make quite a comprehensive paper by themselves.

I am inclined to believe that the term prostatic overstrain is sufficiently comprehensive to embrace the etiology of a very large proportion of cases of enlargement of the prostate. Just as the tissues of a joint, which has experienced a strain during early life, may become thickened as senility approaches without there being necessarily any manifestations of pathological change elsewhere, so may the much abused prostate suffer in old age, the penalty for the abuse it receives during the youth of the individual. But it may be argued that enlargement of the prostate occurs in men who have led chaste lives, and in those who have never had a gonorrhœa, or indulged in the pleasures of the table to excess. It may occur, for example, in the honest farmer, who has been surrounded all his life by an environment conducive to the perpetuation of the ideal physical condition. But there are other evils to be taken into consideration besides sexual excess—infection and the liquor habit. While not so likely to become a masturbator as is the city boy, the young lad in the country very often does fall into this habit, and he is much more likely to suffer from ungratified sexual excitement than is the young man in city life. Strict continence should imply not only physical continence from a strictly sexual standpoint, but mental continence and an abstinence from masturbation. If it be granted that masturbation will produce hyperæmia and hyperæsthesia of the prostate and the prostatic urethra; and if, moreover, it be admitted that the function of any glandular or muscular organ cannot be long abused without the production of a permanent morbid impression, the probable importance of masturbation as an etiological factor in enlargement of the prostate must be admitted. If this be admitted, and the large proportion of boys who are addicted to this habit be taken into consideration, the question of masturbation as an etiological factor in hypertrophy of the prostate becomes a very important one.

Can disturbance of micturition *per se* produce conditions which may lead later in life to enlargement of the prostate? I believe that they can, but the manner in which this is brought about is almost pre-

cisely the same as in the case of prostatic overstrain from sexual excess. Irritation of the prostatic sinus and membranous urethra, *i. e.*, the neck of the bladder, produces frequent and spasmodic expulsion of urine with an attendant stimulation of the nerves of sexual sensibility and a resulting disturbance of the circulation of the prostate similar to that which prevails during sexual excitement and ejaculation. The relation of this condition of affairs to prostatic congestion is well shown by the almost magical effect of the posterior urethral application of nitrate of silver in such cases. The nitrate of silver applied in this manner has certainly no effect upon the prostate *per se*. It is a question indeed whether fluids thus applied ever enter any of the various ducts of the prostatic glands. The nitrate of silver probably superficially cauterizes, or, if you please, constringes only the mouths of these orifics, any other beneficial effect being explained by its action upon the mucous membrane lining the prostatic sinus, and its germ-destroying properties. The fact remains, however, that a large tumefied prostate incidental to the habit of masturbation, or following infection of the deep urethra, will often subside very quickly under the influence of a succession of applications of nitrate of silver to the prostatic sinus.

If the causes of prostatic overstrain be continued during middle life, as they are very apt to be, it is not to be wondered at that there is danger of prostatic hypertrophy. As long as the tissues of the body are elastic and well nourished—tissue metamorphosis occurring readily and rapidly—the various organs and tissues of the body soon recuperate themselves and return to their normal condition after they have been the subject of frequent and extraordinary strain. As the individual approaches middle life, however, this fortunate provision of nature no longer prevails, and in the case of the prostate the penalty of overstrain is obvious. As the prostate enlarges its increase of bulk enhances the very conditions which produced it. The sexual furor and obstinate priapism observed in some old men with enlarged prostates, are familiar to every experienced surgeon.

The influence of gout and rheumatism in the etiology of prostatic hypertrophy must, I think, be taken into consideration, although not to the extent claimed by most of the authors who accept these diathetic conditions as possible or probable causes of prostatic hypertrophy. In considering these diathetic states in their relation to prostatic enlargements, it is fair, I think, to again refer to prostatic overstrain as of the primary condition. To use what is perhaps an indefinite term, but is none the less comprehensive, it may be said that the tendency to chronic formative irritation—or rather to chronic pathological tissue building—seen in many gouty and rheumatic subjects, particularly late in life, may manifest itself only in some organ or tissue which many years before perhaps has been the subject of injury or overstrain. Taking again as our point of departure the thickened and stiffened joint developing in the old man who has suffered an injury to that structure many years before, the possible importance of gout and rheumatism is at once obvious. Few practitioners indeed have not met with cases of so-called rheumatic gout or arthritis deformans limited to a joint or joints which the history plainly shows to have been injured more or less severely in early life.

In regard to the influence of diathesis in the production of hypertrophy of the prostate, I will therefore simply assert my belief that gout and rheumatism should occupy a minor position in the etiology of the disease, because such constitutional states promote tissue irritability and a tendency to new growth at points of strain and irritation either present or long since forgotten.

Prostatic enlargement, as I have shown in the *résumé* of opinions upon its etiology, has been referred to stricture. Stricture of the urethra I believe to be capable of producing chronic congestion and hyperplasia of the prostate, i. e., overstrain with resulting circulatory disturbance, if you please. But I would advance the proposition that within certain limits the danger of prostatic hypertrophy resulting is inversely to the degree of obstruction. By this I mean to convey the idea that strictures of large calibre in the penile

portion of the canal produce proportionately a much greater reflex disturbance of the prostate than deeper strictures of small calibre in the deep urethra. I think that a man who at the age of from 30 to 40 presents himself with a very tight stricture in the deep urethra is likely to be perfectly protected from enlarged prostate in after life; or if the prostate itself becomes enlarged the enlargement is not likely to encroach upon the urethral calibre at the neck of the bladder or to jut into the vesical neck. While irritation and congestion occur, hyperplasia of the portion of the prostate which is most likely to produce urinary obstruction is prevented by the pressure of the urine in the prostatic urethra. My experience in the performance of perineal section upon tight strictures in the musculo-membranous region, has been that the prostatic urethra is often extremely dilated at the expense apparently of the prostate itself, or at least that portion immediately contiguous to the mucous membrane lining the prostatic sinus. The effects of pressure in producing relative prostatic atrophy are well shown in cases of calculi which become lodged in the prostatic urethra. There may be, it is true, compensatory hypertrophy of the outlying fibres of the prostate, but we must not forget what seems to me to be a very logical analogy, viz.:- the hypertrophy of the heart followed by extreme dilatation which results from obstructive valvular lesions.

It must be admitted that whatever the cause of pathological tissue building, hyperplasia or hypertrophy of tissue, the tissue thus formed is produced for a purpose—not always beneficial it is true—for certain anatomical or physiological conditions frequently defeat nature's object in this direction as seen in the case of stricture of the urethra, but even in case of stricture of the urethra nature's intentions are good, and the neoplastic formation is placed there for the purpose of promoting rest or relieving strain. It is either a splint or a bulwark against pressure. If it be admitted—and I think it will be—that nature does nothing in an haphazard way, the proliferation of glandular, connective and muscular tissue incidental to hypertrophy of the prostrate is readily understood. If there were no special causes of strain the prostrate, if it change at all in old age, should atrophy *pari passu* with the diminution of sexual activity, as it does in castrated animals and eunuchs. That it does not frequently atrophy is explicable by two facts, to wit: 1. That very few individuals are in a perfect physiological condition from a sexual standpoint during their entire lives. Fewer still enjoy a normal old age. 2. The sexual activity is long enduring in the male, and the sexual organs may remain capable of the physiological performance of their functions until a period when in other directions the individual is in a condition of advanced senility. To put the latter proposition a little more plainly, and with no intention to be facetious, it may be remarked that the individual dies before his sexual organs have time to do so, in the large proportion of cases. This prolongation of sexual activity is acquired by the human race through faulty sexual hygiene. It is an acquired disturbance of physiological equilibrium.

Prostatic overgrowth from hyper-functional activity of the organ—this being the most comprehensive term which can be used in describing its etiology in detail—may affect the prostrate in several different ways. There may be an excess of glandular tissue, which Moullin believes to be of paramount importance, or there may an access of fibroid tissue. The resulting enlargement may be diffused and general, or may be circumscribed. The arrangement of the enlargement depends largely upon certain secondary conditions to which the hypertrophy may lead, and anatomically upon the relative proportions of fibroid, muscular, connective and glandular tissue. Much depends upon the age at which the subject is examined. If a large number of prostrates in comparatively young subjects in whom more or less congestion and enlargement of the prostrate is present—which is not usually considered to be a preliminary stage in the development of prostatic hypertrophy, but which I believe to be so—could be examined post mortem the proportion of glandular tissue would, I think, be found to be much greater than

in more advanced cases. The glandular elements may be strangled out by fibro-connective tissue development—as in cirrhosis of the liver—as the case progresses. It is this metamorphosis that explains why the engorgements and hyperplasias of the gland occurring in early life have been supposed to be distinctly different from, and to bear no relation to, the pathological condition of the organ occurring in old age.

One of the strong arguments in favor of disturbance of micturition being a direct cause of prostatic hypertrophy, is that the patient presents a history of urinary irritation and obstruction of a greater or less degree of severity, extending perhaps over a number of years before he consults a surgeon; in other words, the secondary results and the most important symptom of prostatic hypertrophy have existed for a long time before the enlargement is discovered by exploration.

We must take into consideration in this connection some very important facts, viz.: 1. Prostatic hypertrophy is not likely to give rise to symptoms until a certain amount of residual urine has collected as a consequence of the obstruction. 2. A considerable degree of residual urine may be tolerated without great discomfort until such time as decomposition occurs. Decomposition is not very likely to occur unless exploration or instrumentation has been undertaken. The cystitis of the prostatique is an ingraft upon the prostatic enlargement and the resulting depression in the *bas fond*, due, as a rule, to catheterization with a dirty instrument. As long as the residual urine does not decompose, just so long does it give rise to very little discomfort. Sometimes the discomfort experienced is very slight, although the amount of residual urine is large in amount, until acute engorgement with resulting sudden urinary obstruction occurs and call attention in a very urgent manner to the condition of the hypertrophied organ. 3. A considerable degree of obstruction with resulting accumulation of residual urine may occur in cases of posterior median hypertrophy or the formation of a bar at the neck of the bladder, which is not easily discoverable by examination either instrumental or digital. This condition produces, in many instances, very disagreeable symptoms and if, after a time, enlargement of the prostate be sufficiently advanced to enable the surgeon to detect it readily, it is likely to be attributed to the long-standing trouble of micturition. A confusion of *propter* and *post* under such circumstances is not to be wondered at.

Regarding the influence of syphilis in the production of prostatic hypertrophy I will simply state that I do not believe that it is of the slightest etiological importance.

I cannot leave the subject of prostatic hypertrophy without paying some attention to certain forms of prostatic disease which will at once suggest themselves to the thoughtful surgeon, as apparently contradictory to some phases of the etiology of the affection as evolved in the foregoing remarks. I refer to those cases in which there are distinct fibro-myomatous or glandular tumors which may be shelled out of the organ upon division of the investing tissues. It has been shown that such tumors are sometimes merely covered in by the prostatic capsule, while in other instances they are imbedded to a greater or less depth in the prostatic tissue. I believe, notwithstanding the apparently distinctly tumorous character of such growths, that the etiological factors which I have outlined may bear an important causal relation to them. I confess, however, that it is much more difficult to define the relation of cause and effect in such cases than in those in which there is a distinct general glandular or fibro-muscular enlargement of the organ. To explain the occurrence of these growths perfectly satisfactorily, it will be necessary to give, at the same time, a logical explanation of uterine fibro-myomata, which offer the clearest analogy to the growths under consideration, as well as of fibroid growths in other situations. The old time explanation of analogy based upon the supposed homology of the uterus and prostate explains nothing, particularly in view of the fact that the etiological theories of uterine fibro-myomata thus far advanced, are by no means as clear as could be desired. Possibly the theory of neoplasms

formulated by Cohnheim is about as comprehensive and logical as anything which has thus far been brought before the profession. Idiosyncracy in the form of a local histological aberration is certainly worthy of consideration. Even admitting the existence of such a local idiosyncracy, however, it might still remain for the etiological factors which I have outlined to determine the occurrence of the growths. When once a circumscribed growth begins, certain local conditions may tend to enhance its circumscription, as is seen in the pedunculation of the so-called median lobe, in which the increasing frequency of micturition unquestionably has some effect in modifying the form of the enlargement.

CONCLUSIONS.

1. The principal criticism which I would offer upon the hitherto published theories of the etiology of prostatic hypertrophy is that there has been an arbitrary attempt by most authors to assign the disease to one particular cause or correlated set of causes to the exclusion of other influences, and with an apparent disregard for the physiology of the organ. This is especially true of the theories of senility, general atheroma, and diathetic conditions.

2. The prostate, while it partakes of some of the pecularities of an involuntary muscular structure is, after all, anatomically and functionally a gland of a peculiarly sexual character.

3. The relation of the prostate to the function of micturition is purely an accidental one, as shown by the perfect performance of this function prior to the period of development of the prostate, and in Eunuchs and Geldings in whom it is atrophied. The participation of the prostate in the urinary function is not only secondary, but where it does come prominently into play, is a sequence of pathological conditions.

4. Granted the sexual and glandular function of the prostate, it is in the direction of the perturbation of this sexual and glandular function that we must look for an explanation of hypertrophy of the organ, or, in short, for all pathological disturbances which are not the direct result either of traumatism or infection.

5. Hypertrophy of the prostate is in all probability due to overstrain of the organ during the period of its greatest sexual activity. This overstrain produces active congestion or hyperæmia, and glandular proliferation, which, if it persists for a long time, is not followed by restoration to the normal condition, but by permanent hypertrophy. Prolonged and ungratified sexual excitement with its resultant disturbance of the circulation of the prostate may, equally with sexual excess, produce a disturbance of the nutrition of the gland which late in life will result in prostatic hypertrophy.

6. The conditions which constitute the point of departure from the normal prostate that determines prostatic hypertrophy at a later period, comes on earlier in life than is usually supposed, a large number of individuals being affected by it.

7. In the majority of instances prostatic hypertrophy is attributed to senile change, simply because the secondary results of a prostatic enlargement occurring at a relatively early period, do not manifest themselves in most instances until the patient is well along in years. It is conceivable that, although more or less prostatic obstruction may exist before middle age, residual urine may not accumulate in any great quantity until after the bladder walls themselves have begun to loose their elasticity by virtue of the physiological changes incidental to increasing age. Even admitting that residual urine has formed in considerable amount, there may be very little resulting disturbance until such time as germs penetrate the bladder and set up decomposition.

8. The occurrence of prostatic hypertrophy in advanced life as a consequence of overstrain of the organ at an earlier period, is explicable upon the same grounds as is the development of arthritic disturbance at the sight of a traumatism—i. e., a strain received in early life—in persons beyond middle age.

9. Senility, gout, rheumatism and general atheroma are in all probability not the exciting causes of prostatic hypertrophy, but are determining factors in so

far as they promote irritability of tissue, a tendency to connective tissue proliferation and a loss of elasticity of tissue.

10. Prostatic hypertrophy is really an evidence of conservatism on the part of nature in her attempts to resist strain and promote rest of a much abused organ, and begins at the time when such abuse is most pronounced, although its effects may not be manifested until later in life when other influences have had time to come into play. While the prostate is not normally a urinary organ strictly speaking, and while disturbance of micturition is not *per se* causative of prostatic hypertrophy, said disturbance when once it arises as a consequence of prostatic hypertrophy, necessarily reacts upon the diseased organ and enhances the pathological condition present.

12. In a perfectly normal old age, it is probable that the prostate should atrophy. That it does not do so more frequently is explained by the prolonged duration of the sexual function in the human species incidental to the developmental effect of over indulgence and other causes of sexual over-stimulation.

It may be remarked in passing that neither the human male nor female is on the average in a perfectly healthy state from a sexual standpont, inasmuch as the sexual function is made subservient to sensual gratification rather than the procreative act its original object. The sexual life of the lower animal—at least in the wild state—typifies the normal in most instances, while that of the human subject typifies the abnormal, or, if you please, the artificial. There is no question in the minds of logical gynecologists and neurologists as to the truth of this assertion regarding the female, and I feel free to maintain that it bears with equal force upon the sexual function and organs of the male. That an organ is patient and long-suffering under physiological abuse, does not obtain for the individual who abuses it, immunity from future penalties.

13. It will be found by careful rectal examinations of men from the age of twenty upwards, that a prostate which is perfectly normal in size, consistency and sensibility is the exception rather than the rule. This is true of the masturbator and sexual hypochondriac as well as of the individual who has had posterior urethritis, although the latter condition is, it must be confessed, a very frequent explanation. That this aberration of the prostate is followed in the majority of cases, by a return to a perfectly normal condition is highly improbable in the face of the fact that the majority of patients so affected lead lives, which are so unphysiological from a sexual and dietary standpoint, that the condition of the prostate is more likely to become aggravated than improved. To expect complete resolution in the average patient, who keeps up his sexual abuse and perhaps over-indulges in the pleasures of the table, would be absurd. The penalty in such cases is, very frequently, in my opinion, hypertrophy of the prostate.

14. There are certain cases of so-called prostatic hypertrophy of a circumscribed character, which should properly be termed fibro-myomata of the prostate, and in which the etiology is very obscure. The old time homology with the uterus explains nothing in the face of the obsurity of origin of uterine fibro-myomata. Even in this last variety of prostatic tumors, the etiology outlined in the paper and conclusions, may have a practical bearing.

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